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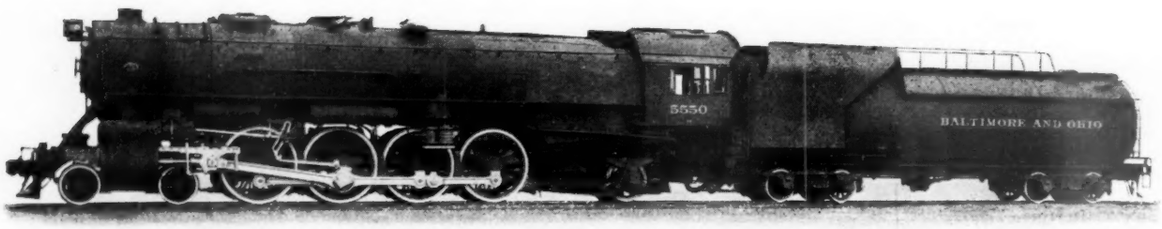
Baltimore & Ohio Introduces



MOUNTAIN (4-8-2) TYPE LOCOMOTIVE WITH RADIAL STAY FIREBOX

Cylinders	27½" x 30"	Water heating surface	5506 sq. ft.
Drivers, diameter	74"	Superheating surface	2451 sq. ft.
Steam pressure	250 lb.	Weight on drivers	260,000 lb.
Grate area	92.3 sq. ft.	Weight, total engine	385,000 lb.
	Tractive force	65,000 lb.	

THE Baltimore & Ohio Railroad Company, which in 1927 celebrated its one-hundredth anniversary, has always maintained a progressive motive power policy. It was among the first roads to adopt six-coupled locomotives for passenger service and eight-coupled for freight, and it was the first in the United States to use a locomotive of the Mallet articulated type. Under the supervision of George H. Emerson, Chief of Motive Power and Equipment, there has been developed and thoroughly tested in both passenger and freight service, a water-tube firebox which is giving most promising results as regards efficiency and low maintenance costs.

The road has recently placed in service four locomotives of unusual interest, which were built in our Works. Two are of the Mountain (4-8-2) type for passenger service, and two of the single expansion, 2-6-6-2 type, for freight. One locomotive of each type has a radial stay firebox, and the other an Emerson water-tube firebox. Interchangeable details are largely used in both types.

The passenger locomotives carry an average of 65,000 pounds on each pair of drivers, and are designed to develop maximum capacity without exceeding this limitation. Service results indicate that this is being fully realized.

BALDWIN LOCOMOTIVES 1831 1931 THE SYMBOL OF

RAILWAY AGE

Regulation Plus Competition

The Interstate Commerce Commission has declined to suspend beyond June 1 its order for a reduction of about $20,000,000 a year in the grain rates of the western railways, and unless the railways successfully appeal to the courts the rates will go into effect on that date.

No facts could illustrate better the attitude of the commission or the kind of regulation to which the railways are being subjected, at a time when they are meeting the most severe competition in their history, and are making almost the poorest earnings. In 1930 the western group of railways earned 3.14 per cent on their property investment. In January they earned at the annual rate of 2.10 per cent. Why does the commission try to enforce such a reduction of rates at such a time?

By the commission's own repeated admission the western lines have never in any year approached the fair return assured them by the Transportation act. They are now falling the farthest short of earning it that they have for ten years, and there is no prospect that they will become able to earn it with present rates after general business revives. Under the law the regulation of rates is based upon two theories. One is that rates in the aggregate should be sufficient to yield a fair return upon a fair valuation. Plainly, the commission's attempt to enforce the reduction of grain rates is made in total disregard of this theory. The other legal theory is that each rate and schedule of rates should be "just and reasonable" for the railways to charge and the shippers to pay. It is ostensibly in accordance with this theory that the attempt to enforce the reduction of grain rates is made. In spite of its voluminous opinion in the grain rate case, it is extremely difficult to understand how the commission could arrive at its conclusion that existing rates are unreasonably high. They are not excessive, as measured by "what the traffic will bear," because the traffic has shown that it can bear them. Apparently they are condemned because they are regarded by the commission as relatively higher than the general level of other rates charged by the same carriers and because the farmers need lower grain rates. Theoretically, however, if the trouble is that they are too high as compared with other rates, the disparity could be remedied by advancing other rates.

Enter Competition

When consideration of the advancing of other rates is begun, however, we immediately encounter conditions which completely refute the main premise upon which our present policy of railway regulation is based. This premise is the assumption that the railways are a monopolistic industry and therefore must be regulated to prevent them from using their power to charge exorbitant rates and make excessive profits. This assumption is true as to most public utilities. It never was entirely true as to railways because there always was competition between them. Whatever truth there formerly was in it as to railways has been completely destroyed within the last decade by the universal development of highway and waterway competition with the railways.

The continuance of a policy of regulation which is predicated on economic and legal assumptions that are now entirely false, and the development of the competition which has made them false, have put the railways between the devil and the deep sea. If fifteen years ago the commission had ordered a $20,000,000 reduction of grain rates, the assumption by it that the railways could recoup themselves by advancing other rates would have been sound. Now, however, any general advance in other rates is out of the question because of the way in which the movement of many kinds of traffic is being affected by the competition of other means of transportation. The commission, in its decision regarding class rates in western trunk line territory, ordered reductions in long haul rates and authorized advances in short haul rates, but to a very great extent motor truck competition renders impracticable the advances authorized in the short haul class rates. Passenger rates cannot be advanced, but, on the contrary, after having, owing to motor vehicle competition, lost many millions of dollars annually in passenger earnings, many railways are reducing their rates for travel in day coaches in an effort to recover some

of their passenger business. Formerly automobile traffic could stand high rates, but now the railways are reducing their freight rates on automobiles in an effort to stop losses of this traffic to the trucks. Regulation never hinders competition of other carriers with the railways, but it often prevents competition of railways with other carriers. For example, steamship lines engaged in intercoastal service are free to charge whatever rates they choose; but when the railways try to reduce their rates to the Pacific coast to meet steamship competition, without also reducing them to intermediate territory, regulation steps in and forbids it.

No Other Industry Similarly Treated

This combination of regulation and competition, which is applied to the railways, is not applied to any other American industry. Public utilities are regulated, but are usually given a monopoly, with the result that the charging of rates found necessary to enable them to earn a fair return is not interfered with by competition. Competition prevails in most other industries, but it is not supplemented by regulation. Furthermore, very few other industries have to meet government-subsidized competition, while the railways are confronted with it on every hand. In consequence, other industries are free to charge as high prices as they can get the public to pay, while not only must the railways in an increasing number of cases reduce their rates to meet the competition of other means of transportation, but at the same time, they receive orders from the Interstate Commerce Commission to reduce their rates upon traffic such as grain which is comparatively free from outside competition.

The Interstate Commerce Commission is familiar with all these facts. It has as yet, however, recommended no legislation for solving the problems that they present. Perhaps it will make some such recommendations after it has completed its investigation of motor bus and truck traffic. It should be evident, however, that the members of the commission now assume a heavier responsibility than ever before when they seek to compel important reductions of rates on traffic that is only in small measure subject to competition by other means of transportation, and that this responsibility carries with it the duty of helping the railways to get from other sources the equivalent of the earnings of which they are deprived by the commission's orders. Up to the present the commission has regulated railway rates as if it was hardly aware of the existence of the competition of other means of transportation.

It is daily becoming plainer that if the railways are to contribute in future to the prosperity of the country as they have in the past through their service, the purchases they make and the employment they give, the nation's present policy of dealing with the various means of transportation must be completely overhauled. The railways still are, and for years will continue to be, the country's most important and essential means of transportation. Those who cannot see that they cannot indefinitely stand the present combination of restrictive government regulation and government-aided competition are peculiarly gifted with stupidity. If they are to make sufficient earnings to render the service that the public welfare demands they must either have less of such regulation as is exemplified by the commission's decision in the grain rate case, or less government-subsidized and unregulated competition. Those who favor continuance of present government policies in dealing with transportation must either desire the destruction of private ownership of railways or be in capable of foreseeing the inevitable effects of a continuance of present policies.

In their "Declaration of Policy" the railway executives asked for a respite from reductions of rates. The Interstate Commerce Commission has responded by attempting to enforce its order for a reduction of grain rates. The railway executives also asked for a cessation of government subsidizing of their competitors and for regulation of their competitors such as is applied to the railways. These proposals are being opposed not only by those engaged in rendering other kinds of transportation service, but also by the traffic managers of some commercial organizations and large industrial concerns. There is a notable lack of definite suggestions of other policies from those who oppose those advocated by the railway executives. It is hardly creditable to many industrial traffic men who in the past were the loudest in their complaints regarding shortcomings of railway service that they are now among the loudest in opposing every policy that is proposed by anybody else as a means of enabling the railways to render good service in future.

"Snow Trains" as Traffic Merchandising

Special trains, run on Sundays and holidays from large cities to country points and return for the particular benefit of winter sports enthusiasts, as recently introduced by the Boston & Maine and as described in the *Railway Age* of February 28, page 448, are an interesting innovation in the use of excursion trains and rates. But they are far more important as an example of original, skilful and highly successful merchandising in the passenger traffic field, at a time when such merchandising is badly needed and when any promising effort to improve it must meet with hearty approval.

The Boston & Maine is, to be sure, merely taking advantage of special conditions. Given the entire population of Greater Boston on which to draw for passengers, and the many sports centers for which New England is justly famous, within easy rail distance thereof,

for destinations, plus the facts that many city dwellers can leave their winter's work only on Sundays and that winter motoring is often anything but enjoyable, the new trains, with adequate service and reasonable rates, have every reason for success. That, however, is beside the point; which is that the traffic officers of the railroad observed that unusual conditions did exist, saw the potential benefit they offered to the railroad, and had the courage to introduce the service necessary to secure that benefit.

It is equally beside the point that these "snow trains" may yield little or no net profit over the out-of-pocket cost of running them; for they seem likely to accomplish far greater, though less direct, results. They are giving many people a new acquaintance with the railway, and a new idea of railway service, which may well bear fruit when the means of transportation for next month's business trip or next summer's vacation is considered; while the enthusiastic newspaper comment and voluntary publicity received throughout the region served by the road cannot but be of valuable assistance to all its traffic merchandising.

Especially favorable conditions for the running of "winter sport specials," such as those enjoyed by the Boston & Maine, may exist nowhere else in this country. But there may be equally suitable if less obvious possibilities in the vicinity of many large cities for the establishment of other special excursions which would make an additional concrete contribution to present efforts to popularize railway passenger travel, and which may well merit careful consideration by traffic officers.

Tear Misleading Propaganda to Pieces

In a recent statement to the West Virginia legislature, supporting its opposition to increased taxation, the West Virginia Transportation Association, representing the bus lines of that state, undertook to show that the typical West Virginia motor bus is taxed 14.3 per cent of its annual gross revenue; that buses in West Virginia last year carried 19,000,000 people at an average fare of 17 cents; that the industry as a whole has been unprofitable, not more than 10 per cent of the operations in West Virginia having been profitable last year; that the greatest competitor of the railroads and the bus lines is the private automobile; that the bus lines hope by constantly reducing rates to demonstrate that "public transportation" is cheaper than "private transportation"; that decreases in rates cannot be made unless taxes are "just, fair, and reasonable"; and that any additional tax would result in a serious loss to the companies remaining in the field and an inevitable inconvenience to the public. From this the association concluded "that the buses of this state are paying their full share of taxes." The assertion that the typical bus is taxed 14.3 per cent of its gross revenue is based upon the contention that license plates and the permit tax take 7.33 per cent of gross revenue; the gasoline tax, 3.33 per cent of gross revenue; the gross sales tax, 0.95 per cent of gross revenue; and the compulsory insurance premium, 2.70 per cent of gross revenue.

John J. Cornwell, general counsel of the Baltimore & Ohio, in a memorandum submitted to the finance committees of the two houses of the West Virginia legislature, literally tore these arguments to pieces. He showed that the compulsory insurance premium is not a tax, but an item of expense comparable to the expenses borne by the railroads on account of workmen's compensation, hours of labor regulation, grade separation, safety appliance regulation, and the like. The amounts paid for license plates and in permit and gasoline taxes go for maintenance of the highways, and are therefore items of expense comparable to the railroads' maintenance charges. Deducting these three items from the total, Mr. Cornwell pointed out that the typical bus' contribution to taxes for general governmental purposes is only $259.50, or less than 1 per cent of its gross revenue. The railroads, on the other hand, contribute 5.95 per cent of their gross revenues in that state to the general support of government, state, county, district, and municipality. Mr. Cornwell went on to show that not only are the bus lines paying less than one-sixth as much as the railroads for general governmental expenses, but they are paying less than one-fourth as much as the railroads for the construction and maintenance of the roads over which they operate.

To meet the assertion that motor buses fill an economic need, Mr. Cornwell pointed out that less than 10 per cent of the operations in the state are profitable; that unless the buses can survive on a business basis, their economic justification would seem to be a matter of doubt; that the fact that buses carried 19,000,000 people in West Virginia last year is no proof of their economic necessity; that if buses, or some of them at least, are able to survive only under subsidy, their economic need would seem to be illusory; and that to continue the policy of subsidizing buses is to continue an uneconomic agency of transportation at the expense of an economic agency of transportation, to the certain detriment of the public at large.

Concluding, Mr. Cornwell said, "It is not to be supposed from what has been said that any one believes that all motor buses are uneconomic and should be abandoned. If we made the motor bus stand on its own feet and pay its way, as we do the railroads, the uneconomic buses would disappear and the economic buses, as well as the public, would be that much better off." The barrage of propaganda being laid down in every state by the bus and truck interests should not be ignored by the railroads. It can, and should, be torn to pieces as has been done by Mr. Cornwell in this case.

N. Y. C. Opens

Finest Dining Car Commissary

In the Country

Large installation in New York City equipped to supply 26 cars per hour—Hospital and train-lighting facilities

Exterior View and Delivery Room

WHAT is believed to be the largest and finest-equipped railroad commissary in the country has been opened by the New York Central at the Mott Haven yards in the Bronx, New York. All dining cars handled at New York are serviced, and supplies for branch commissaries are also distributed from this point. The commissary embodies advanced ideas for expeditious, sanitary and economical handling of food supplies for dining cars, 26 of which can be serviced in one hour. The project includes hospital facilities and also has complete train-lighting equipment, capable of charging batteries for 100 cars at one time.

How the Supplies Are Stored

The commissary is located in the new Melrose Central building at 161st street and Morris avenue, a 13-story structure, occupied by the New York Central and the Pullman company. It is an L-shaped structure with one wing extending 166 ft. along Morris avenue and the other wing extending 185 ft. along 161st street, where an additional two-story portion, 75 ft. long, makes the total length of the building 257 ft. on 161st street. It is a concrete structure, finished in buff brick, trimmed with limestone and black terra cotta, and has three stories below street level—a basement, a track-level floor, and one story between the track level and street. The space devoted to dining car service occupies 33,900 sq. ft., consisting of 6,724 sq. ft. in the basement, 10,476 sq. ft. for commissary and 7,856 sq. ft. of store-room space at track level, 1,927 sq. ft. on the second floor and 6,917 sq. ft. at street level. The basement is used for the storage of bottled goods, vegetables not requiring refrigeration, and various bulk commodities such as flour, coffee, etc. The track floor has a room 60 ft. by 160 ft., where supplies are collected for the cars and where all merchandise is received, weighed and transferred to storage. This floor also contains the cold storage unit, embracing separate rooms for milk and cream, including ice cream; separate rooms for eggs, cheese and butter; for fruits and vegetables; for fish; and separate

rooms for receiving, cutting and storing meats. The second floor contains linen and silver-storage rooms, rooms for glass and china ware and cooking utensils, and also a linen repair room. The third floor is equipped for the general commissary offices, and also with rest, shower and locker rooms, and hospital facilities for the employees and crews.

Extensive Refrigeration

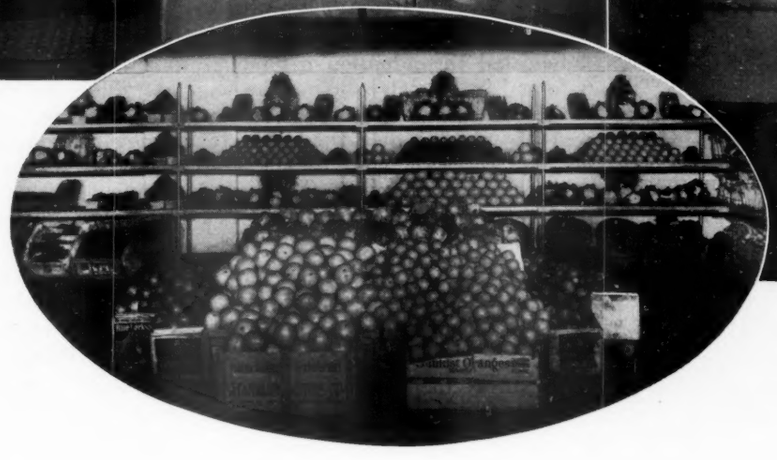
Particular care is devoted to the handling of perishables. Meats are received in a refrigerated room, 10 ft. by 20 ft., and cut in an adjoining room, two sides of which are practically all glass. Butchers in this shop, which is kept at a low temperature, prepare all meats and wrap them in glazed paper ready for the oven or gridiron. The meats are then transferred to the storage room, which has a capacity of 40,000 lb. Fresh fish is kept in a separate refrigerated room, measuring 8 ft. by 23 ft.

Fresh fruits and vegetables, which the road serves the year around, are placed in a refrigerated room, 23 ft. by 27 ft., while a room, 10½ ft. by 23 ft., is provided for milk supplies and separate rooms, 6½ ft. by 8 ft. each, for butter, cheese and eggs. Ice cream is stored in a special refrigerated compartment, and cigars, cigarettes and bottled beverages, each have their separate rooms, where the temperature and humidity are automatically controlled. All ice used in the building is purchased from a storage plant nearby, which also supplies the brine used in cold storage which is piped under the street into the commissary building. No dry ice or electric refrigeration is used.

The linen storage room on the second floor is 20 ft. wide and 38 ft. long, while the linen repair room is 22 ft. wide and 40 ft. long. Here, the soiled linen is sorted, inspected and counted for delivery to the laundry, using trucks which back up to the building at the yard level. The room is equipped with sewing machines for repairing the linen or converting old linen to other uses. In addition to the linen rooms, the building also provides a room for cleaning carpets, where carpet beating is done mechanically and the dust carried by suction to a penthouse on the roof, while carpet washing is provided for by frames, upon which the textiles are stretched during scrubbing to prevent their shrinkage.

In the Receiving Room

Meat-Cutting Room



In the Fruit and Meat Storage Rooms

Separate rooms are provided for the stewards, cooks and waiters, each room being equipped with lockers and shower baths, while other accommodations include a private office for the manager of dining service, a conference room and a hospital equipped with an operating room, a two-bed ward, a reading room and four other rooms. This hospital is open 24 hours a day and is available for emergencies and also for the routine physical examination of cooks and waiters.

The Supply Work

Supplies are issued to the dining car crews over counters on two sides of a space 18 ft. by 80 ft. on the track-level floor. The space above the counters is enclosed by windows. When reporting after a trip, each steward, anticipating the next run, fills out a supply requisition which is subject to a later revision. The supplies are assembled at one of 24 windows where clerks inside the counter and the stewards on the outside check the supplies, which are then placed in baskets and carried by electric truck to the cars. Handling is facilitated by a freight elevator in the building, measuring 6½ ft. by 13 ft., and by eight rubber-tired electric trucks, each having a capacity of 4,000 lb.

The floors throughout the commissary space are concrete, and the commissary rooms are both spacious and attractive, as well as sanitary. All walls where food is handled are of white glazed tile, and the floors, red tile, while the other floors are of concrete. The doors, window frames, shelving, shipping counters, cold storage racks, etc., are all metal, including Monel metal. The heating of the storage rooms is provided by hot air ducts suspended from the ceiling. The supply work is handled under the direction of J. R. Smart, manager of dining car service, and W. F. Jones, commissary purchasing agent.

Railroad Preparation for War

WASHINGTON, D. C.

RECOGNITION that railroad operation is a fundamental public necessity, vital to the national defense, and must be maintained unimpaired, both in times of peace and war, was urged by R. H. Aishton, president of the American Railway Association, on March 12 before the War Policies Commission, appointed under a resolution adopted by the last Congress "to study and consider amending the Constitution to provide that private property may be taken by Congress for public use during war, and methods of equalizing the burdens, and to remove the profits of war, together with a study of policies to be pursued in event of war." Secretary of War Patrick J. Hurley is chairman of the commission.

"In all plans for national defense," Mr. Aishton told the commission, "thought should be given primarily not what to do with these arterial railway systems in time of war, but how to build them up in time of peace so that they may meet any emergency of war. The railways recently adopted a Declaration of Policy for the consideration of Congress and the people of the United States, in which it was recommended that, from the standpoint of national interest in maintaining in the highest degree adequate and efficient transportation in every modern form, equal opportunity should be given the railroads and the various forms of unregulated transportation to handle the commerce of the nation.

"We believe that with a sympathetic consideration of what is recommended by the railways in their Declaration of Policy, and having in view the necessity of keeping every means of national defense in the very best condition, not necessarily *for conducting war,* but more important *as a preventative of war,* that the results it is desired to accomplish can best be brought about by a recognition that railroad operation is a fundamental necessity. Railroad operation is one of the keystones of national defense, the one that would first be required to function in the event of an emergency, and the maintaining at all times of an efficient national system of transportation, not only adequate to the commercial needs of the people, but also to the needs of a nation in such an emergency, is necessary if we are to progress as a nation."

Mr. Aishton called attention to the testimony before the Interstate Commerce Commission last week of Lt. Col. Brainerd Taylor, assistant to the quartermaster general of the Army, in which the Army officer said, "Our arterial railway system is the backbone of our national and international commerce and of our national defense, and all other forms of transport are for us but extensions and auxiliary services, none of which should be permitted in any way, shape or manner to weaken or retard the development of our national system of arterial railways."

Mr. Aishton told the commission that six years ago the War Department and the railway executives adopted a tentative plan for operating rail carriers in time of war, which is still in effect. While this plan was developing through a series of conferences, he said, it was decided that it would be of distinct advantage to set up a skeleton organization in time of peace for the purpose of establishing contacts between government officers and transportation officials. In addition, a railway president was designated as point of contact with each Corps Area Commander to deal with him concerning questions of executive policy in that area and such plan is now in effect and functioning.

"The underlying thought," continued Mr. Aishton, "in all this is that should the misfortune of war overtake us, this skeleton organization, having already laid the groundwork of contact and mutual understanding of each other's problems, could be expanded indefinitely to take care of almost any situation that might arise and do away with the necessity of any further governmental action. In the remote event of its becoming necessary for government control to be exercised again, it is felt that this skeleton organization would form the basis for carrying out the policies that might be indicated from central authority."

Daniel Willard, president of the Baltimore & Ohio, advocated the adoption of a plan somewhat like that adopted in England during the war, by which the railroads were managed by a committee of their own executives instead of turned over to the government. A committee should be selected in time of peace, he said, to work in contact with the War Department and work out in advance plans under which the railroads could be unified at once.

THIRTY-TWO PER CENT DECREASE is shown in the record of highway crossing accidents on the lines of the Pennsylvania in the year 1930 as compared with 1929. This was the third successive year showing such a decrease, the totals being as follows: In 1928, 933; in 1929, 830; in 1930, 564.

Thirty-Five Years' Experience With Heavy Electric Traction*

Satisfactory equipment has been found—Conditions justifying electrification have been determined—Unified system is needed

By Sidney Withington

Electrical Engineer, New York, New Haven & Hartford

IT may be said that we are entering into a new era of railroad electrification in the United States. The first era, through which we have just passed, opened with the electrification of the Nantasket Beach Branch of the New York, New Haven & Hartford Railroad in 1895. It has been an era of research and development, during which a vast amount of the highest type of original engineering work of all kinds—electrical, mechanical and civil engineering—has been accomplished. Six different electrification "systems" were developed during this period, and, what is equally important, a clear insight was gained into the extremely complex problem of the economics of electrification. In other words, during that era, answers were found to the questions: "What sort of electrical and mechanical equipment will give satisfactory service?" and, "Under what conditions is railroad electrification justified?"

An Era of Expansion

The new era may be said to have opened about two years ago when the Pennsylvania Railroad announced its intention of electrifying its entire system east of Harrisburg. That event was truly epoch-making because the Pennsylvania electrification differs fundamentally in many respects from any of its predecessors. It will be the most extensive railroad electrification in the world and it was not forced upon the Pennsylvania Railroad by legislative action, nor does their electrification merely represent the solution of some special problem created by heavy grades, tunnels, or other local conditions. This project was undertaken because it was foreseen that the traffic demands upon the Pennsylvania lines will greatly increase in the not distant future and it was believed that electric power is the best tool for use in meeting these demands.

A number of other railroads have recently embarked upon electrification projects of considerable magnitude, still others have signified their intention of so doing, and similar action may be expected from even others, and this in spite of the very impressive improvements constantly being made in design, construction and operation of steam locomotives and with due regard to the possibilities of the Diesel electric locomotive. The present era may perhaps be characterized as "The era of expansion in the application of electrification to railroads in this country." It should be said here in passing, that it is of the utmost importance that the railroads themselves should be the sole judges as to whether to electrify in any given instance. Coercion by public regulatory bodies which do not bear financial responsibility for the success or failure of electric operation is bound in the long run seriously to retard its development.

Early New Haven Experience

The New Haven experience dates back to 1889 when the Derby, Ansonia & Birmingham Railway, now a part of the organization, acquired an electric freight locomotive. That locomotive, still preserved as a relic, was the first electric freight locomotive to be operated in this country. The Manufacturers Railroad at New Haven, also now a part of the New Haven system, purchased a 30-ton electric locomotive which was exhibited at the Chicago World's Fair in 1893. That locomotive possessed many characteristics which have been retained in modern electric locomotive design. It has been rebuilt and is still used in industrial switching.

The real pioneer experience of the New Haven, however, began with the change from steam to electric traction on the Nantasket Beach Branch, near Boston, in June, 1895. Power was collected from a large size overhead copper wire installed in what is known as "direct suspension," that is, without catenary support. On July 26, 1896, the Nantasket branch line was extended three and one-half miles to East Waymouth, Mass., a third rail being used as a distribution system. The rail was in the form of a flattened "A" supported on wood blocks midway between the running rails.

Various other installations were made subsequently including the lines from Hartford to New Britain, to Berlin and to Bristol, Plainville and Forestville, Conn., also East Waymouth to Braintree and Nantasket Junction to Cohassett, Mass., and Stamford to New Canaan, Conn. These installations were all made previous to 1901. In 1901 the line was electrified between Providence, Fall River and Bristol, R. I., and a little later electric operation was accomplished between Berlin and Middletown, Meriden and Westfield, Middletown and Cromwell, and between Tafts and Central Village, as well as between Vernon and Rockville and Melrose and Burnside, all in Connecticut. Some of these projects were on the basis of third-rail, some overhead trolley wire directly suspended, and some catenary construction. In all cases the power distribution was direct current at nominally 600 volts.

Such roughly had been the New Haven's electric traction experience when the problem arose of electric operation in the Park Avenue tunnel in New York City. As is well known, electric operation was virtually prescribed by statute, and the New York Central and New

* Summary of a paper presented before the New York Railroad Club on March 20, 1931.

Haven Railroads were obliged to arrive at early decision regarding the scope of their respective electrifications and the design.

The New York Central's Problem

The New York Central chose direct current third-rail electric power distribution at nominally about 650 volts. They were justified beyond question in this choice, for a number of reasons. They did not contemplate at that time any extension of electrification outside of suburban territory. The Grand Central Terminal reconstruction, involving as it did entire modification of the terminal track layout for operation on two levels, was necessarily carried out coordinately with the electrification, and in view of the constant changes in location of the terminal tracks which it was of course, necessary to accomplish under operating conditions, it would have been very difficult to meet the requirements of the exacting service with overhead trolley wires operating at high voltage. Then too, distribution and use of low voltage direct current had reached a high degree of reliability and standardization in various rapid transit developments, so it was necessary to make only relatively slight modifications in existing designs to adapt them to the requirements.

The New Haven Adopts a Bold Plan

The New Haven management, on the other hand, having definitely in mind a comprehensive electrification program in both scope and territory, and realizing from experience with electric operation on their various branch lines, the limitations of low voltage power distribution in heavy railroad electrification, selected the single-phase alternating current system, with an overhead trolley at nominally 11,000 volts, because this system provided economical transmission of power and imposed no limit to the extension of the electrification. How successful the program has been, is indicated by the present scope of the New Haven's electric operation which represents gradual and consistent expansion. Passenger, freight and switching service is handled electrically between New Haven and New York over more than 700 miles of electrified track, by 141 electric locomotives and 268 multiple-unit cars. The equipment with an aggregate rated horse-power of nearly a third of a million, consumes annually over 200,000,000 kilowatt hours.

The decision of the New Haven officers in 1905 to adopt the high-voltage, alternating current system for their main line electrification program was most courageous and momentous. It involved a complete departure from accepted standards and proven equipment; it committed the entire staff of the railroad to immense responsibilities and to years of the most strenuous labor; and involved, possibly, hazard to an investment of millions of dollars and the professional reputation of every one concurring. On the other hand, it was clearly seen that a successful outcome would provide a solution to the then unsolved problem of electrically propelling heavy trains at high speeds over long distances; and, while the officers responsible for the decision were, of course, acting only in the best interests of the New Haven Railroad, we may feel sure that many of them had visions of the era which may now be dawning.

The selection by the New Haven of the single-phase system was largely rendered possible because of the brilliant work of Benjamin G. Lamme, late chief engineer of the Westinghouse Electric & Manufacturing Company, who, through mathematical analyses, had found means of doing something that had previously been generally regarded as entirely impracticable—the production of a satisfactory alternating-current commutating motor.

Important Developments Based on Experience

Among the items included in the New Haven's pioneering was the development of catenary suspension of trolley wires for the collection of current by heavy trains at high speed. The original contact wire was of hard-drawn solid copper and served both as conductor and contact element. The hardness of this wire is only skin deep and with each hangar acting as a "hard spot" bad wear developed quickly. To remedy this difficulty, a second wire of cold-rolled steel to take the pantograph wear, was suspended from the copper wire at points midway between hangars. This also was not sufficiently resistant to abrasion and was subject to corrosion so it was subsequently replaced by specially developed bronze alloys.

Other developments made in conjunction with the New Haven electrification were large steam turbine-driven single-phase generators, a selective system of circuit breaker protection, the gearless single-phase locomotive and current collecting devices which would collect current from an under running third rail located alternatively on either side of the track or from an overhead third rail. Pantographs were developed which would successfully collect alternating current from an overhead wire at 80 miles an hour. Important distribution system improvements included such items as the use of steel "H" sections as poles for cross catenary and for bracket supports and the three-wire system of single-phase power transmission and distribution with balancing transformers. The problem of insulator design was for a long time extremely troublesome before satisfactory solutions were found. Another original contribution of the New Haven has been the twin motor with quill-gear drive now widely used for all electric locomotives requiring high horsepower per axle. Performance of the locomotives may be judged by their having been in continuous service nearly a quarter of a century during which time they have averaged about a million and a half miles per locomotive.

What System of Power Distribution?

As already pointed out, the first era of railroad electrification through which we may be said to have passed has made available answers to two questions: "What sort of equipment will give good service?" and "Under what conditions will electrification pay?" We are now called upon to answer definitely a third question: "What electric system is the best for general use for heavy, main-line electrification in the United States?"

It is sincerely to be hoped that this important question will be answered before long. With the growth of railroad electrification, the necessity will arise for the interchange of equipment among railroads, and unless a system of power distribution can be agreed to as standard by the railroads of the country, the diversity of electrical characteristics among railroads is going to be a major calamity, comparable perhaps to the diversity in track gage which caused so much trouble and loss in the early days of railroading.

It is, perhaps, true that until recently there has not been sufficiently reliable information available to justify standardization of this kind, but this is no longer the case. The dog-fights which took place from time to time years ago as to the relative value of the various

"systems" were not based on quantative analysis and led nowhere. If, however, the data now existing can be properly correlated, a conclusion based on definitely established premises should be readily reached. It is not pertinent to say that one type of electric power distribution is most satisfactory for terminal or yard switching, another for heavy freight operation on steep grades, or for high-speed passenger service, and another for suburban electrification, for such tenets defeat the basic principle of standardization. A single system, one which is by-and-large most suitable for *all* electrification requirements should be authoritatively agreed upon. Until this is accomplished, the extension of railroad electrification will be seriously handicapped.

Heisler Diesel-Electric Locomotives

THE Heisler Locomotive Works, Erie, Pa., recently designed and built a 60-ton oil-electric locomotive which is powered by two 180-hp. Buda Diesel engines. These deliver their power to two Westinghouse d.c. generators, which in turn supply current to two traction motors mounted beneath a Commonwealth integral cast-steel frame. The traction motors are spur-geared to a center drive shaft, which transmits the power through a pair of bevel gears to one axle of each truck. Side rods are utilized to deliver power to the other two driving wheels. The shafts of all the driving gears are mounted in Timken roller bearings.

The engines and generators are above the floor level of the locomotive and are directly connected. The motors are suspended from the frame directly beneath the generators and midway between the two trucks. The single drive shaft, running through the two motors to both the front and rear trucks, is designed with universal joints which work in combination with the swivel trucks, making it possible for the locomotive to negotiate sharp curves. The trucks are of the same basic design as used on Heisler steam locomotives.

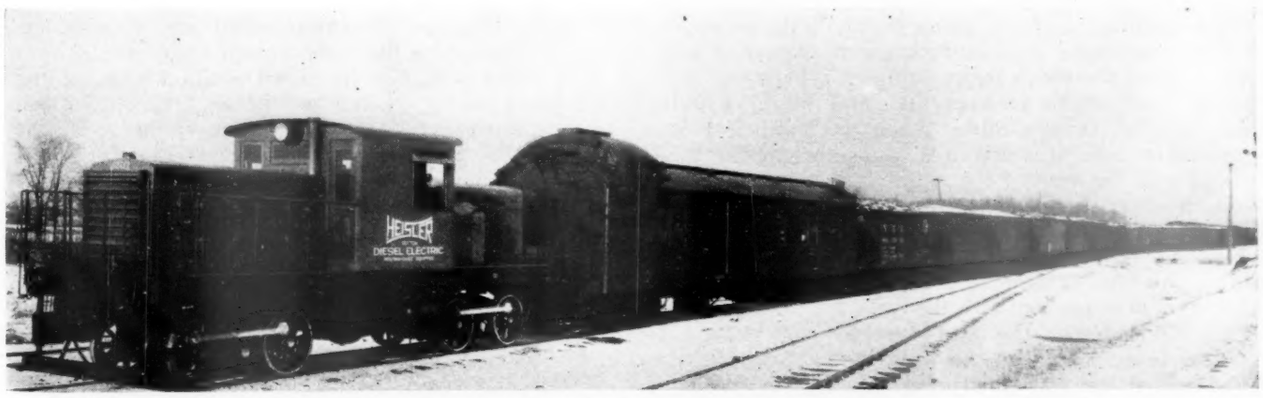
The electrical equipment of the locomotive is comprised of standard Westinghouse railway apparatus with differential field control. The locomotive is equipped with two Gardiner Denver duplex compressors, one compressor being driven from each engine. The combined output of these compressors is 118 cu. ft. per min. Westinghouse combination straight and automatic air brakes are used with an additional hand brake for holding the locomotive when out of service. Current for starting, lighting, excitation and remote-control equipment is supplied by an Exide type M. V. A. storage battery, which is charged by either of the two generators during operation.

The locomotive was designed for use in railroad switching service at steel mills, strip mines, quarries and for logging and similar service where steep grades are encountered. To determine the actual drawbar pull of the locomotive a New York Central dynamometer car was coupled between the locomotive and the fifteen hopper cars filled with coal. At the rear of this train a steam locomotive was attached for the purpose of increasing the load by setting the air brakes on the freight cars. Tests were made on straight level track, on a 3-per cent grade and around a 14-deg. curve. These tests indicated that the locomotive developed a tractive force of 47,800 lb.

Light-Weight Auxiliaries for Reading M. U. Cars

ALUMINUM will be used to effect a 27 per cent reduction of weight in the design of a blower-generator set to be used on the multiple-unit cars for the Reading suburban electrification. The set consists of a squirrel cage induction motor, driving a fan which supplies cooling air to the traction motors and a generator for charging the storage batteries. The motor is a two-pole, 25-cycle machine running at 1,400 r.p.m. and rated 18.5 hp. at 360 volts and 56 amperes. The generator is a four-pole machine rated 1.8 kw. at 34 volts and 53 amperes. The generator is overhung on the motor shaft, the principal function of the motor being to furnish cooling air.

The parts of the motor made of aluminum are the frame, housing, stator end plates, rotor windings and air inlets. Cooling air for the motor enters at the ends through cast aluminum screens, is propelled by two aluminum fans and leaves by perforated sheet steel exits cast into the aluminum frame. Two ball bearings carry the shaft. The brush holder brackets and cover of the generator are also made of aluminum. The total weight of the set is 755 lb., while an identical set using cast iron parts weighs 960 lb. The machine is a development of the Westinghouse Electric & Manufacturing Company.



The Heisler Diesel-Electric Locomotive Hauling the Dynamometer Car and Coal Cars During a Test Run

The Ro-Railer with Truck Chassis

Motor Car for Road and Rail

Unique car designed and built in England with flanged and rubber-tired wheels for combined rail and highway operation

The Original Ro-Railer Motor Coach—It has been Manoeuvred on the Grade Crossing with the Flanged Wheels Over the Rails, Preparatory to Driving It Forward Off the Crossing, So That the Flanged Wheels Will Take the Weight Off the Road Wheels Equipped With Pneumatic Tires

A UNIQUE innovation in transportation facilities, which is a motor coach designed for combined rail and highway operation, has recently been designed and built in England. This motor coach, designated as the "Ro-Railer" because of its adaptability for both road and rail traffic, was built by Karrier Motors, Ltd., Huddersfield, England, to specifications submitted by the London, Midland & Scottish Railway. The motor coach is equipped with flanged wheels for rail operation and wheels equipped with Goodyear rubber tires for highway service.

In general appearance the coach differs very little from an ordinary highway motor bus, with the exception that it is equipped with buffers and drawgear at both ends. When the coach is operating on a highway, both rail and road wheels are concentric and the rail wheels, being smaller, revolve idly. When the coach is being operated on rails, it is driven to a place where the road is level with the head of the rail and manoeuvred into a position where the flanged wheels are directly above the rails. It is then driven forward a few yards past a point where the road tapers off from the level of the rail head. As the vehicle is thus lowered, the flanged wheels come in contact with the rails, taking the weight of the Ro-Railer off the road wheels.

After being placed on the rails, the road wheels are lifted out of the way, this being accomplished without removing the wheel from the axle. The lifting operation is completed by two eccentrics which are arranged, one inside the other, between the hub and rim of the wheel. The combined throw of the eccentrics lifts the wheel to a position where it clears the rail by 6 in. To effect this lifting operation, two pins are withdrawn from the hub and then, by means of a lever, the wheel is turned on the hub until the inner eccentric is in its upper position where it is held by re-inserting one of the pins. This operation is repeated for the outer eccentric, after which the second pin is re-inserted.

The wheel is held in its raised position by a folding guide block, which, when in use, permits relative vertical movement between the axle and the frame when the coach is operating on rails. It is impossible to insert the holding pins in a wrong position when raising the road wheels, as the guide block covers the pin hole which is not required and only exposes the one into which the pin is to be inserted. The guide block is also equipped with an automatic lock which prevents the pins from working loose when subjected to vibration. A similar device is embodied in the hub flanges of the wheels to lock the pins in position when they are inserted in the wheels after the latter are lowered for operation on highways. There is no load on the guide-block structure when it is supporting the raised wheels

except that which is required to overcome static friction between the inner bearing of the inner eccentric and the driving hub when the coach starts to move on the rails.

The driving mechanism is the conventional motor-coach differential drive which is directly connected to the rear axle. The coach is furnished with a 120-hp. engine and is equipped with a special transmission arrangement which includes a supplementary gear box designed to give additional increased speed at low engine speeds when the coach is operating as a rail unit. When running on rails, the steering gear is left free. The flanged wheels are of the Lang laminated type which are of light construction and designed to absorb any noise resulting from the vibration of the wheels running on the rails. The Lang wheel is shielded from the heat generated in the brake drum by steel side plates. The brake drums assist in the quick dissipation of heat by virtue of thick circumferential steel bands with which they are equipped.

Principal Dimensions and Operating Data of the Ro-Railer

Horsepower of engine (6 cyl.)	120 hp. max.
Chassis wheelbase	17 ft. 1 in.
Pneumatic tires	
Front	36 in. by 6 in.
Rear	42 in. by 9 in.
Gear ratio (rail)	4.2 to 1
Gear ratio (road)	7.0 to 1
Max. speed (rail)	75 m.p.h.
Max. speed (road)	60 m.p.h.
Fuel consumption (rail)	16 mile per imp. gal.
Fuel consumption (road)	8 mile per imp. gal.
Load capacity	
Passenger Coach	26 persons
Freight Truck	6,600 lb.
Overall length	26 ft.
Overall width	7 ft. 5½ in.
Overall height (rail)	9 ft. 6½ in.
Overall height (road)	9 ft. 9¾ in.
Light weight (motor coach)	15,677 lb.

In order to conform to braking requirements when operating on the railroad, both the front and back wheels are equipped with brakes. In highway operation, satisfactory braking is obtained through brake drums of the conventional type which are located on the hubs of the rear driving wheels.

The buffers at the front and rear of the Ro-Railer are of standard railway height and width. Those in front are mounted on a tubular structure which can be detached and stowed in a locker located beneath the chassis. The rear buffers are attached rigidly to the chassis, flush with the body end. A removable stanchion hook is mounted through an aperture in the floor while a towing shackle is arranged so that it can be passed through a trap in the emergency door at the rear of the coach.

Ro-Railers have been built for both passenger and freight traffic. The chassis of both types vary but little from the conventional highway motor coach or truck, with the exception that they have been constructed to conform with highway regulations as well as with railroad requirements. The principal dimensions of the Ro-Railer motor coach are given in the table.

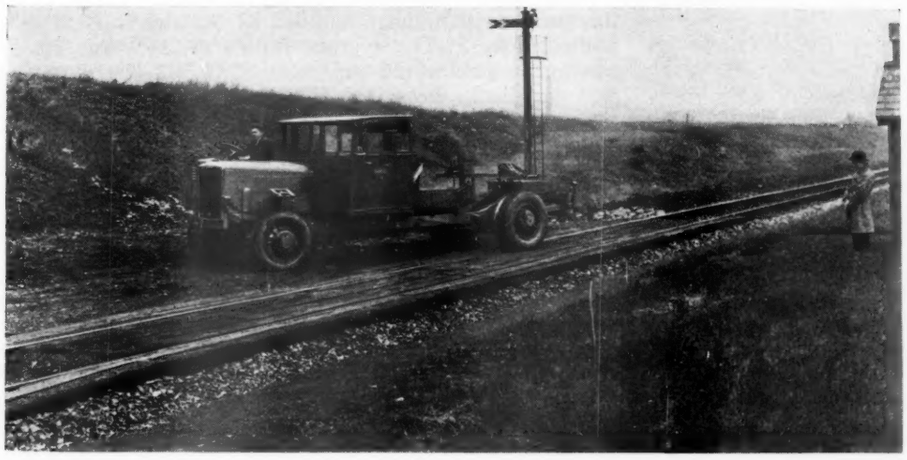
Road and rail demonstrations were run on January 22, 1931, at Redbourn on the L. M. S. branch between Harpenden and Hemel Hempsted, England. The group attending the demonstration was carried in relays over a five-mile stretch of rail and then taken for a short trip through the streets of Redbourn.

Applications of the Ro-Railer

The builders have designed the dual-wheel principle of the Ro-Railer so that it can be adapted to all types of motor vehicles and trailers. It can also be applied to established highway buses and trucks without a great deal of special equipment being necessary for effecting the change.

The Ro-Railer was designed principally for use on branch lines, especially on those where towns lie at a considerable distance from the railway station. The advantages which are expected from the use of the Ro-Railer in passenger traffic are five in number: (1) Lower operating costs; (2) increased safety in operation; (3) additional comfort and complete visibility; (4) shorter hauling distances and faster transportation; (5) door-to-door transportation of passengers and freight without transference of load at any point during transit. In addition, the Ro-Railer is expected to find use in the railway field for conveying men and supplies to any point along the right-of-way where line construction or repairs are being made.

When Lowering the Wheels for Highway Operation It is Only Necessary to Remove the Holding Pins and Shove the Wheel Forward



The Ro-Railer Ready for the Highway—Note the Special Built-up Change-Over Grading Between and On Each Side of the Rails

The Modern Trend of Transportation

Traffic problems confronting western carriers are discussed at Western Railway Club meeting

TRANSPORTATION tendencies and problems, particularly those confronting the western carriers, were discussed at the regular monthly meeting of the Western Railway Club at the Hotel Sherman, Chicago, on Monday evening, March 16, the principal addresses being made by F. W. Robinson, vice-president in charge of traffic, Union Pacific system, Omaha, Neb., and J. E. Buker, vice-president, Vapor Car Heating Company, Chicago. Approximately 300 members and guests of the club were in attendance when President L. R. Wink, assistant superintendent of the car department, Chicago & North Western, called the meeting to order.

Mr. Buker, the first speaker, presented a paper entitled "Transportation", in which he called attention to the decline of steam railroad traffic in all branches in 1930 and the resultant forced curtailment of expenses and maintenance work, much of which is only postponed and must be taken care of at a later date. Mr. Buker closed his remarks with an earnest appeal for all railroad men and supply company representatives to use rail service exclusively when on business, and to emphasize the advantages of steam rail service when talking to friends who are prospective travelers or shippers.

Mr. Robinson's remarks regarding the traffic problems confronting western carriers were presented in a paper entitled "The Changing Times", an abstract of which appears below.

The Changing Times

By F. W. Robinson *

The question is frequently asked: "What is the matter with the railroads?" A number of writers, in analyzing this situation, have expressed the thought that the trouble with the western railroads is largely a traffic one. They make broad and very proper statements that the operating and mechanical officers of these railroads have done a thoroughly good job, but that the traffic problem has not been well in hand. So we are led directly to the question: "What is the trouble with the western railroads from a traffic angle?"

The function and purpose of a railroad is the transportation of traffic. If the rates are inadequate, or its traffic too light, it is in financial difficulties. So far as the rates of western railroads are concerned, it may fairly be said that the rate structure is largely beyond the control of the traffic officers. Certainly, the question of any advance in rates is entirely beyond such control, for the reason that the entire rate structure has, from time to time, been before the Interstate Commerce Commission and either ordered or approved by that body. Traffic officers can, however, reduce rates, and there is a constant appeal, if not pressure, for rate reductions. An industry finding itself in distress immediately begins to look at transportation costs, and from then on endeavors to recoup or improve its situation by a reduction in the freight rates.

* Vice-President, Union Pacific System, Omaha, Neb.

Wholly aside, however, from these commercial situations, there are elements of competition entering into the transportation scheme of things. During the period of progressive prosperity, these competitive elements, while growing, were not serious. In a period of depression and slack business, however, any more economic means of transportation is immediately seized upon for the economy it affords, as well as for its convenience.

No industry or no transportation method is entitled to any prior right to public favor, provided it is accorded a fair chance with its competitors. The Association of Railway Executives promulgated, in November of last year, a "Declaration of Policy" that is deemed necessary to the continuance of adequate transportation service to the public. In this declaration, the following appears:

"The public is entitled to the best transportation at the lowest reasonable cost. However, where the rail carriers are prevented by direct legislation or regulation from fairly competing with new or old forms of transportation, or where the service rendered by the competitors is a subsidized one, such unfair hindrances should be removed."

Competitive forms of transportation now existent may be classified under the following general heads: Crude oil pipe lines; natural gas pipe lines; gasoline pipe lines; automotive bus and truck operations; inland waterway developments; coastwise and intercoastal service; airways.

Aside from minor restrictions, none of these competing elements are subject to regulation or control with respect to their rates and charges. The result is that, regardless of the fact that existing rate levels of the western railroads do not yield adequate or fair returns, they are yet too high to hold the traffic.

Natural Gas and Gasoline Pipe Lines

There are now approximately 80,000 miles of natural gas pipe lines in the United States. The largest natural gas field is in the Amarillo, Tex., area, from which point gas is being transported by pipe line into Oklahoma, Kansas, Nebraska, Colorado, Wyoming, Iowa, Illinois and Missouri. It has been estimated that the consumption of natural gas in 1929 displaced about 59,000,000 tons of coal, or, roughly, 1,200,000 carloads, or 17,143 trainloads of 70 cars each.

Fifty-nine million tons of coal represent 2 per cent of the total of all tonnage handled by the railroads of the United States. The average return in 1929 was $2.25 per ton, which would represent $132,750,000 of gross revenue lost to the railroads in coal traffic. On the assumption that this is 2 per cent of all the tonnage handled, and applying this same 2 per cent to the wages of trainmen directly employed in transportation, it is the equivalent of $16,000,000 decrease in wages to railroad employees and is the equivalent of displacing 6,600 train, engine and yard men in railroad employment. This takes into consideration no collateral losses, which are attended and directly affected, in the way of station and clerical employees, accounting forces and others, which would easily result in a minimum of $4,000,000 additional in wages, or a total, in round figures, of $20,000,000, the purchasing power of which immediately affects all lines of industrial and retail activity.

The transportation of gasoline by pipe lines is a comparatively new development. Certain hazards, because of the leakage of pipe lines, volatility of the fluid, etc., have seemed to make it impracticable, in the past to use pipe lines for such transportation, but these difficulties have been overcome, with the result that gasoline pipe lines are now in use from the Oklahoma refineries into Kansas City, and lines will soon be finished into St. Louis, Chicago and intermediate points, with branch distributing lines from the main trunk line. It is the intention to have outlets every 50 or 75 miles, with tank-truck line operations to retail filling or service stations, with the result that the pipe line will serve economically an area 100 miles in width, i.e., 50 miles on either side, and the amount of traffic which will be diverted from the rail carriers will be enormous.

The provisions of the Transportation Act apply to common carriers engaged in "the transportation of oil or other commodities, except water, and except natural or artificial gas by pipe line, or partly by pipe line and partly by railroad, or by water." While pipe line companies file tariffs, there is no requirement or restriction upon them with respect to the transportation of commodities in which the pipe line owners are interested directly, or indirectly, as the railroads are restricted. As to the transportation of natural gas by pipe lines, there are no provisions in the law and no restrictions of any kind as to the price at which the commodity will be sold.

Automobile Truck Competition

One of the most serious forms of competition with which the railroads are confronted is that of the unregulated truck operations. There is little, if any, restriction within any of the states as to the length, weight, or size of the motor vehicle, and none, whatever, as to the operation of such vehicles in interstate traffic. As a result of the operations of these carriers, the railroads have lost practically all of their high class, short-haul traffic to points within 100 miles, and experience a steadily increasing loss to points beyond that distance. This sphere of truck activity is an ever-widening circle, as hard-surfaced roads are developed and more aggressive and responsible operators engage in the truck business. Where the country is more sparsely settled, the longer zones of operation are encountered. In the Union Pacific territory, operations 700 to 1,000 miles are becoming forceful competitors. Not only are the rates of these truck operators unregulated, but their practices are, as a rule (because of this unrestricted operation), of a nature that cannot be met by the common carrier railways because of the state and interstate regulations under which the railroads operate.

The trucks take more risks in their operation with regard to the handling of the goods, do not require packing provisions or proper protection from loss and damage, operate on no schedule of hours of service, and their rates are largely a matter of barter and trade.

Probably in no one industry has the truck played so important a part as in the transportation of live stock. To the yards of the four principal live stock markets of the western territory, viz., Omaha, Kansas City, St. Joseph and Denver, there were moved by truck, in 1930, 5,429,453 head of live stock, or about 21 per cent of the total receipts. This is the equivalent of 85,403 carloads, equal to about three and one-half million dollars at the published carload rates, which the railroads have lost. Shippers of live stock do not use the truck service because of economy in transportation, but more because of convenience. In fact, the transportation cost is actually greater than if the stock were moved by rail, and the resultant deadage and injury to live stock are somewhat heavier. It is a convenience, however, for which even the farmer, in his distressed financial condition, is willing to pay a premium, because a truck will pick up the stock at his farm and deliver it to the central market yards. This volume of traffic, diverted from the railroads, seriously reduces the revenue of the carriers and the employment of railroad men.

Intercoastal Steamship Service Through Panama Canal

Steamship service between Atlantic and Pacific ports in the United States, via the Panama canal, is a competition that has proved highly detrimental to railroad revenues, especially those of the western and the transcontinental lines. While I emphasize the effect on the revenues of the transcontinental rail lines, there is no western railroad that is free from the effect of this severe competition. For illustration, in 1930, the westbound cargo moved in these inter-coastal vessels was 2,695,520 long tons of 2,240 lb. each. The eastbound cargo was 6,368,830 long tons. The principal items of tonnage moved were iron and steel articles westbound, and petroleum products (largely crude oil and gasoline) eastbound. Westbound, there is no class of tonnage exempt from this competition, and these intercoastal lines are reaching farther into the interior for westbound traffic, until today approximately 50 per cent of the set-up automobiles from the Detroit and Wisconsin manufacturing points are moving via the Canal route to Pacific coast ports.

On some of the traffic, the rates made by the Canal lines are so low as to make it entirely out of the question for rail carriers to meet it. On others, the rates are not so low but that the traffic could be handled by the transcontinental lines at some profit, provided we were not compelled to reduce all of our rates to the intermediate points. In other words, we find a competition existing at the terminals. If there were any flexibility in the law, permitting the carriers to adjust their rates to meet this competition where it is found, a substantial portion of this traffic could be recovered.

I wish to correct an impression, if it may prevail, that there is no flexibility in the Transportation Act. Section IV of the act does provide for such contingencies, but the discretion for any relief from this act rests wholly with the Interstate Commerce Commission and, since 1914, no relief has been granted the carriers in meeting this competition. Not only has this competition deprived the carriers of a tremendous volume of traffic, but it has, during this period since 1914 and especially since the end of Federal control, operated to change the industrial map greatly. For illustration, for a long period of years, the rail carriers were permitted to meet this competition by carrying lower rates to the terminals than to the intermediate points. Because of this ability to meet the intercoastal competition, manufacturers at interior points such as Chicago, Milwaukee, Omaha, St. Louis, etc., enjoyed a large business with the Pacific coast. Because of the lower transportation costs from New York and the Atlantic Seaboard states, the interior manufacturers have largely lost this Pacific Coast business, and there is no way to recover it, except that the railroads be permitted to meet fairly the competition with which they are confronted.

Eastbound, the steamer lines take every class of freight except perishable traffic. There is only one reason why the perishable business is not handled via the intercoastal lines, and that is because of the necessity for distribution over a wide marketing area. The ships are equipped with refrigeration space and there is no question but that they can safely and properly transport perishable freight, especially such commodities as citrus

fruits and apples. However, the practical question enters into it of delivering at one point 60 to 75 carloads of citrus fruit, for illustration, in one load. The effect would be to create a surplus of the commodity at one market on one day, with the result that the fruit could not be absorbed and the prices would be depressed. The entire distribution has been built up by rail, with wide diversion-in-transit privileges, and a splendid distribution of the products is thus accomplished, avoiding the glutting of markets and maintaining a greater stability of prices.

Therefore, the only eastbound business of volume that is left to the rail carriers is the perishable traffic, and so distorted has the relative movement become that there are about three eastbound loads to one westbound loaded movement, necessitating a large empty car haul in one direction. These intercoastal lines are unregulated as to rates. Not only are their rates, under normal conditions, much lower than those of the rail lines, but recently, because of the breaking up of the Intercoastal Conference Committee, there is open warfare between these lines, with the result that there is no stability in the rate structure, and rates as low as 20 cents per 100 lb. have been quoted on iron and steel articles from Atlantic to Pacific ports. That is, of course, exceedingly unprofitable, and it may be expected that a number of the lines will be forced out of business, if not actually into bankruptcy. The situation is really so severe that recently an appeal was made to the last Congress by the intercoastal operators for the enactment of legislation to place their operations under the jurisdiction of the United States Shipping Board.

Inland Waterways

The development of inland waterways through congressional appropriations and governmental operations is a subject much too long to cover within the time allotted to me. I will touch upon it only briefly, pointing out a few of the salient facts with respect to this operation and its effect upon the western railroad situation, not only with respect to lines paralleling or operating in close proximity to the navigable streams, but reflectively to lines far removed from this inland waterway operation.

In the first place, the installation of the lines is wholly through government appropriations. Their operation is at a deficit, which is made up through government appropriations. Under the direction of the Interstate Commerce Commission, and by legislative procedure, joint rates are in effect between the government-owned and operated barge lines and the railways. These rates are generally on a basis of 80 per cent of the all-rail rates, a differential that probably is not unfair in and of itself. In the division of these rates, however, the rail carriers are required to participate in the differential, instead of the reduced rate being absorbed by the operator providing the differential service. To illustrate this situation: An all-rail rate from New Orleans to Omaha may be in effect via the Illinois Central to East St. Louis, and then via the Chicago, Burlington & Quincy to Omaha. A through rate is established via the barge lines to East St. Louis, and the C. B. & Q. to Omaha, that is approximately 80 per cent of the all-rail rate. The C. B. & Q. is entitled to the same proportion of the through rate from East St. Louis in connection with the barge line as it would have received if the shipment had moved up to that point in connection with the Illinois Central. It performs exactly the same amount of rail service, but under a decision of the commission, it is compelled to participate in the differential rate and shrink its earnings. As a matter of fact, in all fairness and equity, the differential for the slower and less expensive service of a barge line should be absorbed by that operation. This is cited only as illustrative of rates in western territory.

Another illustration affecting the operations of the transcontinental lines is the movement of refined cane sugar from the San Francisco bay sugar refineries operating on raw sugar from the Hawaiian Islands. The sugar is moved via the canal route to New Orleans, trans-shipped to the barge lines, moved on the Mississippi river to Cairo or Memphis, stored in transit at that point (where free storage for 90 days is provided) and distributed by rail from these storage warehouses to such places as Kansas City and other interior points at rates substantially lower than all-rail rates.

Unregulated Competition Constitutes Principal Problem

The foregoing outline of these competitive features with which western railroads are confronted is indicative of the serious situation and is in a large part, if not almost entirely, the answer as to what is the trouble with their traffic. Railroad men do not complain of fair competition. They do protest against unfair competition. The railroads are subject to the most rigid regulation of any industry. Their competitors are entirely free agents. Until a public sentiment is aroused to the necessity of a correction being applied to these unregulated forms of competition, there will not be much improvement in the revenues of western carriers.

In the meantime, neither traffic nor operating officers of the western carriers are wholly idle. Steps are being taken to meet, so far as we can, some of this competition. We look forward to some constructive action on the part of legislatures now in session, with regard to some form of regulation of automobile, bus and truck competition. It may or may not occur. We do look for and reasonably anticipate a more liberal attitude on the part of the regulatory bodies. Possibly some relief will be granted from the drastic rate reductions which have been ordered. We are seeking and hope to secure some relief from the bad practice of ordering reparations, running back for several years in many cases, and these reparation orders occasionally applying to rates which the commission, itself, has heretofore prescribed as reasonable maximum rates.

This outline is given, not in a pessimistic frame of mind, but rather as a recital of the facts and conditions as they actually prevail. There has ever been a resourcefulness and initiative on the part of railroad traffic officers which may be temporarily stunned by the succession of blows recently received, but certainly it is far from being dead. The American public has an innate sense of fair play and is generally in sympathy with the under dog, a term which may well be applied to the traffic of the western railroads at the present time. Railroad men as a class are good citizens. They are engaged in a constructive industry, one that is an essential and integral part of the industry activity of this nation. They are forward-looking men who deserve and command the respect of the public, and I have sincere confidence that these many problems will be fairly adjusted for all of the interests concerned. This is not going to be accomplished, of course, by merely wishing it on the part of railroad employees, but can be gained only through the intelligent and fair presentation of their problems to the public and to congressional representatives having to do with legislative matters.

There is something for you as an organization to do in this matter. There is something for the business interests of this country to do about it, and there is something for the vast army of stockholders of these many railroads to do about it in their own investment interests.

Crawler Shovel and Wide-Wheel Wagons Drawn by Tractors

Constructs Embankments in Three-Foot Lifts

Southern resorts to special measures to secure stable fills on double-track work in Kentucky

SPECIAL grading methods designed to secure a maximum solidification of embankments were employed by the Cincinnati, New Orleans & Texas Pacific (Southern) on second-track construction in Kentucky, as a result of careful studies of the materials encountered.

These materials have been responsible for serious difficulties with the fills on the original line since its construction in 1877. The railway is now completing the double-tracking of its Cincinnati-Chattanooga line between Williamstown, Ky., and Danville, a distance of 77 miles, but this article is confined to a description of the work between Williamstown and Roger's Gap. In this stretch of 22 miles, the character of the materials is wholly different from that encountered further south and had presented difficulties in the past which it was desired to avoid in the embankments required for the double-tracking.

Involved 1,500,000 Cu. Yd. of Grading

The work consists of 16 miles of parallel second track requiring 500,000 cu. yd. of excavation, and six miles of new double-track revision requiring 1,000,000 cu. yd. of excavation. The largest cut contained 180,000 cu. yd. and the largest fill contains 235,000 cu. yd.

The northerly four miles is in the Maysville formation which consists of interbedded blue limestone and shales, most of the alternate layers being thin. In general, the shales predominate and the limestone layers are, in places, thin and shaly. Some moderately heavy beds of limestone occur at certain horizons, but the usual thickness of single beds is less than one foot.

Example of a Sliding Fill

Motor Trucks Were Also Used

South of the Maysville formation the Eden Shale formation is encountered. This formation consists of blue shales containing some sandy layers and local beds of limestone. Through both formations, hard layers alternate with soft ones which decompose on exposure to the atmosphere. These soft decomposed layers become semi-fluid and unstable when saturated. The Eden Shale formation disintegrates even more rapidly than the Maysville formation.

Behavior of the Material

Existing fills made of material from these formations slide when they become saturated. Water pockets form in the interior of the fills, causing the fills to squeeze out at the bottom, allowing the top to settle. In many of the fills this squeezing has resulted in a series of ridges, appearing as though the material had spurted out. This action of the fills evidently began soon after the road was put in operation in 1877 and has continued since. For many years, various drainage schemes were tried in an endeavor to stop the movement of the fills. Perforated pipes were driven horizontally into them, vertical holes were drilled near the base of the slopes and shot, piles were driven and cinders were used exclusively to restore the fills to original elevation. Finally trenches about six feet wide were cut into the fills at right angles to the track. These trenches follow the original ground line to the shoulder and were backfilled with one-man stone. This last scheme is giving good results.

Because of past experience with this material and the urgent need of protecting the existing rock-filled trenches, it was considered inadvisable to construct the new roadbed for parallel track by widening out the old fills in the usual manner or to construct the fills on line revisions by the usual train-haul methods. It was thought that much more stable fills could be obtained by using flat slopes (2:1), and by placing the material in uniform horizontal layers not exceeding three feet thick from slope to slope. The work was carried out along these lines and the material was so thoroughly compacted by uniform travel over each layer that, in many cases, the volume of the material in the fills is 10 per cent less than that originally occupied in the cuts.

How the Work Was Done

The terrain is generally rough and broken, many of the hills having a 25 ft. rise in 100 ft. To overcome this steep grade in hauling, a part of the top lift of each cut was used to build a road down the hillside along the inside edge of the fill slope to a height of about 8 to 10 ft. above the bottom of the fill. From this roadway or ramp, tractor trains turned off over the area of the fill to deposit material in layers not more than three feet thick. The ramps were built up as the fills were made. One tractor and one wagon per train were used for starting each cut and fill. Two or three wagons per tractor were used later as the grade of the ramp decreased. From three to six tractors with the necessary number of wagons were used per shovel, depending on the distance of haul.

Rock-Filled Trenches Constructed to Drain an Unstable Embankment

Tractor-Mounted Carts Drawn by Caterpillar Tractors

On parallel work the theoretical width of cut necessary for second track did not provide sufficient width for the operation of shovels, so it was necessary to make all shovel lifts, except the bottom one, of extra width to provide a bench for the hauling operation. Fortunately all cuts more than one lift high required extra width for borrow, thus providing working space with a minimum of waste. The narrow width of these lifts in cuts and on fills made the operation of tractor trains impracticable, so dump trucks were used. No difficulty was encountered in handling material containing as much as 50 per cent of solid rock and in some instances all solid rock, although the rock broke up in comparatively small pieces.

Extend the French Drains

The rock ribs or French drains which had been built into the old fills, as heretofore described, were extended in the parallel work to the outer edge of the added fill. These extensions were constructed of one-man stone the full width of the old drains as dry rock walls from 8 to 10 ft. high. In addition to the extension of the rock drains, further precautions against slides were

Parallel Ridges at the Base of a Sliding Fill

taken by removing the old slide material from the toe of the old fill on the side that was widened. This was done by running a shovel through the slide banks and casting the material outside the slope stakes, thus clearing the original ground surface so that it could serve as a foundation for the widened fill.

Owing to the extreme dryness of the past summer and fall it has not as yet been possible to determine the final results of the methods used; but from evidence now at hand it is apparent that the fills are much more stable than those constructed of better material by the usual train methods.

The equipment used on the revisions consists of: 1¼-yd. to 2-yd. caterpillar shovels; 10-ton, 60-horsepower, caterpillar tractors; 8-yd. caterpillar wagons; and 6-yd. wheel wagons. On the parallel work 1¼-yd. and 1½-yd. caterpillar shovels with 3½ and 5-ton dump trucks were used; both steam and gasoline shovels were used, gasoline machines being employed where water was not available.

The unit costs of grading done according to the methods employed on this project compare favorably with costs under the usual train-haul methods, and with the use of heavier hauling equipment it is believed that the new methods will result in unit costs lower than those for train-haul work for most materials, provided the haul is not too long.

The Bates & Rogers Construction Company of Chicago, Ill., was the contractor. Lacy Moore, district engineer, was in charge of the work for the railway company.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended March 7 amounted to 723,534 cars, a reduction of 150,182 cars as compared with the corresponding week of last year and of 224,005 cars as compared with 1929. Loading of grain and grain products showed an increase of 572 cars as compared with last year but all other commodity classifications and all districts showed reductions as compared with both years. Miscellaneous freight was 71,298 cars less than in the corresponding week of last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week ended Saturday, March 7, 1931

Districts	1931	1930	1929
Eastern	168,325	199,190	221,872
Allegheny	145,640	178,589	191,754
Pocahontas	40,785	48,449	55,210
Southern	115,246	140,667	148,382
Northwestern	87,771	107,579	112,545
Central Western	106,190	126,099	136,169
Southwestern	59,577	73,143	81,607
Total Western Districts	253,538	306,821	330,321
Total All Roads	723,534	873,716	947,539
Commodities			
Grain and Grain Products	41,556	40,984	41,907
Live Stock	18,446	23,545	23,420
Coal	129,123	144,698	169,337
Coke	7,970	10,107	13,021
Forest Products	34,051	58,020	64,903
Ore	5,344	8,137	10,732
Mdse. L. C. L.	220,465	250,348	259,959
Miscellaneous	266,579	337,877	364,260
March 7	723,534	873,716	947,539
February 28	682,000	899,498	978,201
February 21	713,938	827,560	905,503
February 14	720,689	893,140	957,498
February 7	719,053	886,701	955,981
Cumulative total, 12 weeks	7,049,756	8,627,167	9,263,331

The freight car surplus for the last week in February averaged 650,964 cars, a decrease of 2,823 cars in a week. The total included 324,938 box cars, 253,515 coal cars, 31,419 stock cars and 15,317 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended March 7 totaled 48,106 cars, an increase of 347 cars over the previous week but a decrease of 13,058 cars from the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
March 7, 1931	48,106	29,338
February 28, 1931	47,759	28,174
February 21, 1931	47,463	28,795
March 8, 1930	61,164	37,827
Cumulative Totals for Canada		
March 7, 1931	460,501	275,921
March 8, 1930	563,139	366,663
March 9, 1929	611,005	422,142

INDUSTRIES to the number of 175, representing an investment value of $7,500,000 were located in nine states along the Illinois Central during 1930. These industries, which employ approximately 3,000 persons, were established in 119 cities and towns.

New South Wales Mountain Type Locomotives

THE New South Wales Government Railways recently placed in service 25 three-cylinder locomotives of the 4-8-2 type which have been designated by that road as its D-57 class. The locomotives were designed under the direction of E. E. Lucy, chief mechanical engineer of the New South Wales Government Railways and were built jointly by the Clyde Engineering Company, Granville, N.S.W., and the Mort's Dock and Engineering Company, Balmain, N.S.W., the former building the engines while the latter constructed the tenders. The locomotives, developing a tractive force of 56,000 lb. and said to be the most powerful locomotives in Australia, are used in hauling heavy freight trains over mountain divisions.

The three-cylinder arrangement and a 70 per cent limited cut-off were adopted for the locomotives when it was found impracticable, with the maximum load gage of 9 ft. 8 in. wide by 14 ft. high, to provide locomotives of two-cylinder design with cylinders large enough to develop the power required without reverting to a boiler pressure higher than 200 lb. per sq. in. The three cranks, which are arranged to drive the second pair of driving wheels, revolve forward in the sequence of right, left and center. The distribution of the steam to the two outside cylinders is controlled by Walschaert valve gear while the valve of the center cylinder is operated by an arrangement of levers located in front of the cylinder casting.

The engine frame is of one-piece design. It is 46 ft. 6 in. long, weighs 15 tons and was cast by the General Steel Castings Corporation, Commonwealth Division. The boiler and firebox are of steel, but the tubes, flues, and arch tubes are of charcoal iron. The length of the barrel between the tube sheets is 20 ft. and the diameter of the largest course is 87½ in. The acid steel plates used in the construction of the firebox were manufactured by the Lukens Steel Company. Rigid hollow staybolts are used throughout with the exception of the radial stays, which are the Flannery flexible bolts. The weight of the boiler and firebox complete, without water, is 38 tons.

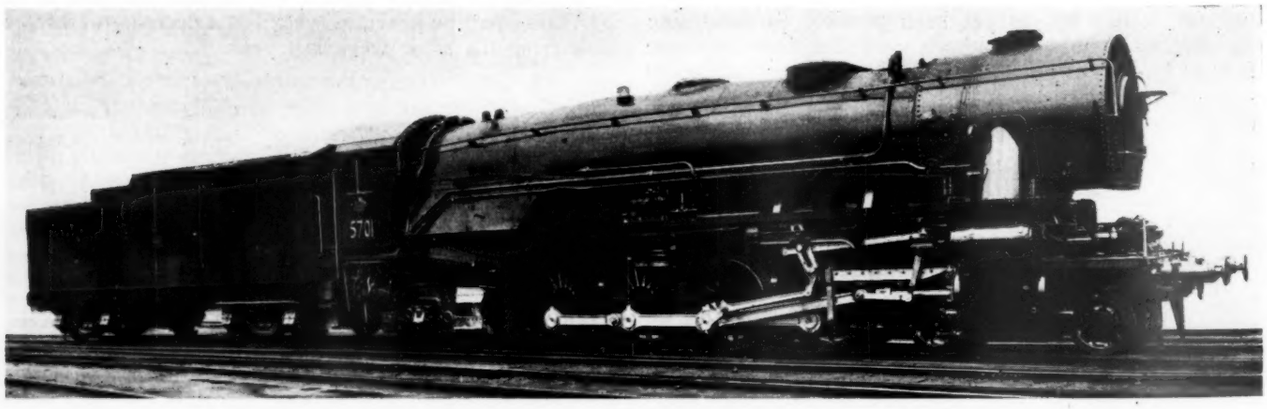
A spacious cab is provided, together with a unique feature known as the spectacle plate which follows the boiler back lap joint so that all wall and flexible firebox stays may be examined or removed without removing the cab. A smokebox of the self-cleaning type is supported on the saddle of the cylinder castings. The ash-pan has three hoppers and is flushed by pipes leading from the injector delivery. The locomotives are equipped with two Nathan 1918 special non-lifting injectors with steam starting valves mounted on the outside of the cab. Each injector is capable of delivering 5,000 gal. of water to the boiler per hour.

The locomotive is equipped with a superheater of 40 elements with the superheater damper gear fitted into the self-cleaning smokebox. A Westinghouse cross-compound compressor is mounted on the right side of the engine. Other accessories include a Standard Type B stoker, a Franklin Precision Type F power reverse gear, and three Ashton muffled safety valves.

Principal Dimensions and Weights of the 4-8-2 Type Locomotives for the New South Wales Railways

Railroad	New South Wales Government Railways
Builder—Engine	Clyde Engineering Co., Granville, N. S. W.
Tender	Mort's Dock & Engineering Co., Balmain, N. S. W.
Service	Freight
Rated tractive force at 70 per cent cut-off	56,000 lb.
Weight on drivers ÷ tractive force	3.15
Cylinders, diameter and stroke (3)	23¼ in. by 28 in.
Valve gear	Walschaert
Weights in working order:	
On drivers	176,400 lb.
On front trucks	47,700 lb.
On trailer truck	38,200 lb.
Tender	190,000 lb.
Total engine and tender	452,300 lb.
Wheel bases:	
Driving	15 ft. 9 in.
Total engine	37 ft. 7½ in.
Total engine and tender	76 ft. 10¾ in.
Wheels, diameter outside tires:	
Driving	60 in.
Front trucks	31 in.
Trailer truck	42 in.
Boiler:	
Steam pressure	200 lb. per sq. in.
Fuel, kind	Bituminous coal
Diameter, first ring outside	87½ in.
Length over tube sheets	20 ft.
Grate area	65 sq. ft.
Heating surfaces:	
Firebox and combustion chamber	259 sq. ft.
Arch tubes	37 sq. ft.
Tubes and flues	3,094 sq. ft.
Total evaporative	3,390 sq. ft.
Superheating	773 sq. ft.
Combined superheat. and evap.	4,163 sq. ft.
Tender:	
Water capacity	9,000 gal.
Fuel capacity	14 tons

The engine is designed to negotiate curves of 11 deg., the four-wheel engine truck being equipped with heart-shaped links for lateral control. The trailing truck is of the two-wheel Delta type, built by the General Steel Castings Corporation, Commonwealth Division. It is designed with a lateral constant-resistance device to improve the riding qualities of the engine and is fitted with an axle designed to permit the application of a booster if it is ever desired. The tender has a capacity of 14 tons of coal and 9,000 gal. of water.



Australian Locomotives in Service on the New South Wales Government Railways

Reciprocity on New York Central

Purchasing policies and practices scrutinized by I.C.C. at resumption of hearings in Brooklyn, N. Y.

COPIES of several thousand letters and memoranda taken from the files of the New York Central Railroad were placed into the record of the hearings in connection with the Interstate Commerce Commission's investigation into reciprocity in purchasing and routing (I.C.C. 22,455) at the March 12 session in Brooklyn, N. Y. The introduction of the foregoing correspondence and a few accompanying exhibits followed the initial testimony of three New York Central officers —C. S. White, purchasing agent; W. C. Bower, vice-president in charge of purchases and stores; and R. J. Menzies, traffic manager. With the introduction of the exhibits, which were identified for the record by C. A. Candee, service agent, Bureau of Service, Interstate Commerce Commission, the hearing recessed from March 12 until March 18 in order to allow the witnesses time to prepare for examination on the correspondence involved.

The correspondence reveals New York Central policies with reference to the allocation of its purchases among various firms competing for its business and also the influence of the road's traffic department's recommendations on such allocations. The great bulk of the letters relates to coal and cement purchases. The purchasing policy in connection with orders for these two commodities is clearly defined. In general such orders are allocated to firms, local to New York Central Lines, on the basis of traffic received from those firms. An endeavor is made to assign to each seller of coal or cement the same percentage of the New York Central requirements as the seller's carload shipments of the commodity purchased bears to the total shipments of all firms recognized as eligible for the order. Policies in connection with purchases of other materials, as gleaned from the exhibits, seem less rigidly defined, although the influence of traffic is present and the reciprocity argument is frequently used in letters of firms soliciting orders.

Draft Gear Purchases

There is no evidence in the correspondence that traffic officers of Swift & Company and Armour and Company endeavored, as they did with other roads, to influence the draft gear purchases of the New York Central. There is, however, a file of correspondence relating to Armour and Company traffic and purchases by the New York Central of dining car supplies. One letter in this file, written by Mr. Menzies to F. O. Stafford, traffic manager of the New York Central at Chicago, says in part "my personal opinion is that it would not make any difference how much the Dining Car Department bought from Armour & Co., but there are some other matters involved, such as Mr. Ellis' personal interest in some gears. He has been trying to prevail upon Mr. Ingalls to have purchases made from his company; that is the real meat in the cocoanut."

Mr. Bower's direct testimony in connection with draft gear purchases was that he had discussed the matter with the traffic department and had been told that certain concerns were interested in certain draft gear manufacturers. He added "We paid no attention to traffic considerations in connection with draft gear purchases" and continued to point out that the traffic department did not attempt to vary the standard system of handling such purchases. Mr. Bower further testified that the New York Central originally used Miner and National draft gears and that after a two-year test the Waugh gear was approved and has since been purchased; only five sets of Durable draft gears have been purchased, these for test purposes.

Opposes Paying Premium for Traffic

Opening testimony of Mr. White was reported in the *Railway Age* of March 14. He was questioned at length in connection with the policy of permitting firms of traffic value to the New York Central to revise their bids to meet prices of original low bidders on contracts to be awarded. This policy the witness admitted was predicated on traffic reasons and whenever an order can be divided shippers are given the opportunity to lower their bids provided they request the permission. Mr. White considered this practice "good business" and stated that no protests were received from original low bidders. All bidders, he explained, understand that the requirements will be divided. Mr. White would oppose, as unsound practice, the paying of a premium on purchases for traffic reasons; his department had never been requested to do so by the traffic department.

Questioned as to boycotts of the New York Central, Mr. White disclaimed knowledge of any; he had heard of threats but knew of no diversions actually made. His department, he added, has never been stampeded into a purchase. Questioned as to firms claiming to control traffic other than their own Mr. White recalled the case of the Charles R. Long, Jr. Company of Louisville, Ky., which claimed to control the traffic of the Carnation Milk Company. The Long Company was given some of the New York Central paint business but Mr. White did not know whether or not the traffic claimed to be controlled by the seller was taken into consideration.

Mr. White next testified regarding lumber, cement and coal purchasing. Most of the New York Central lumber, he said, comes from the South; 60 per cent is of Southern origin while 20 per cent is purchased along the lines of the New York Central and a like amount comes from the Northwest. No distinction is made between mills, wholesalers and brokers. All purchases of lumber are made on the basis of competitive bids. At a previous point Mr. White testified that lumber purchases are effected less than others by traffic considerations. Cement orders, Mr. White explained, are distributed geographically to plants convenient to work contemplated; most of the cement is bought from producers local to the New York Central and Mr. White did not recall any specific off-line purchase. Cement inquiries go into the market every three months.

The testimony of Mr. White in connection with coal purchases was concerned with reference to instances where distress coal was taken over and to questioning as to the policy of the New York Central in using coal which had been stored in anticipation of threatened strikes. In the majority of cases, he said, requests to take over distress coal (coal which cannot be readily

marketed) are rejected although some such fuel has been accepted in a few odd cases. It has been accepted from companies with which the road had fuel orders and applied against such orders.

Delay in Using Stored Coal

In connection with coal stored in 1927 Mr. White stated that the New York Central was asked to defer raising this fuel, and had accordingly delayed the liquidation for about a year mainly because of such protests. He did not, however, recall any protests after the policy of raising the coal was launched and stated that the stored fuel has now been liquidated.

In closing his direct testimony, Mr. White stated that while reciprocity has been more generally talked about during the past few years he did not believe the situation has substantially changed. The nature of the market—whether it be a buyers' or sellers' market—he thought, had considerable to do with the case. While he conceded that the situation has recently become more acute he was unable to say that it has caused him more concern or embarrassment than it did 15 years ago.

Coal Buying Policy

Vice-President Bower, the next witness, after outlining the organization of the purchasing department which he heads, proceeded to discuss New York Central purchases of coal. All fuel coal originates at mines located on the lines of the New York Central and inquiries are sent out April 1, the beginning of the coal year. Total requirements, Mr. Bower said, are allocated among the various producing districts so that orders will be placed where coal is cheapest at destination. The price in each producing district is agreed upon in conference with operators.

For coal from the mines of the Clearfield Bituminous Coal Corporation, a New York Central subsidiary, the cost of production is paid. Fuel requirements allocated to the districts are further broken down for allocation to the mines. This latter is on the basis of commercial coal traffic received from the mines in the previous year. The minimum amount of commercial traffic which will bring a fuel order varies as between districts. The traffic or the accounting department, the witness said, checks the claims of coal sellers as to the commercial coal traffic which each controls.

Rail Purchases

Purchases of steel rails, Mr. Bower testified, are made under the Clayton Act and contracts for such are awarded on the basis of competitive bids. Rail prices, he continued, are standardized and have not changed for 10 years; orders are divided among the Bethlehem Steel Company, the Carnegie Steel Company, the Illinois Steel Company and the Inland Steel Company. Traffic, Mr. Bower said, is not considered in rail purchases except in the Chicago district where orders are divided on the basis of traffic received between the Illinois Steel Company and the Inland Steel Company. This latter practice, he added, is an established policy when price, quality and service are equal.

The questioning next turned to the transaction whereby the New York Central sold 200 cars to the Edward Hines Lumber Company (see *Railway Age* of October 18, 1930, page 812). Mr. Bower said that his road has refused to meet the request of A. A. Adams, freight traffic manager of the Edward Hines Lumber Company, to make a subsequent contract in connection with this transaction in order to make the sale f.o.b. Burns, Idaho, instead of f.o.b. Chicago.

In closing Mr. Bower reiterated the statement of Mr. White to the effect that the purchasing policy of the New York Central has not changed although he conceded that shippers are "more aggressive" than they were 10 or 15 years ago. No boycotts have come to his attention although he has heard of diversions and of the New York Central's being short-hauled. These cases, he added "haven't annoyed us to any extent" as he denied ever giving an order to prevent a diversion. He did not think reciprocal buying has affected the New York Central in any way when net traffic is considered.

Mr. Menzies was the third witness; he testified that he has had a great deal of contact with the purchasing department—mostly personal contact. He receives calls from representatives of firms interested in New York Central business and has "tried to be helpful" by introducing these representatives to purchasing officers. Traffic reports received from the auditor of freight accounts, Mr. Menzies continued, are used more as a business barometer than anything else. The witness stated that no definite recommendations are made to the purchasing department although, he added, "we are interested in large shippers, naturally."

The awarding of cement orders was next considered and Mr. Menzies explained that these were distributed on the basis of commercial shipments of cement. Contractors doing New York Central work are asked to allocate their cement orders to certain firms. These requests are not always met and in such cases the allotment of cement is transferred from the firm which was recommended to the one which actually received the order from the contractor.

In response to a final question as to whether or not he had any conferences with representatives of draft gear manufacturers, Mr. Menzies smiling said, "No, sir, I'm not in on that."

At this point W. A. Cotton, mechanical assistant of the Erie, appeared and presented data on fuel coal contracts of that road which had been requested at previous hearings.

Correspondence on Lumber

The first batch of correspondence in the exhibits relates to lumber purchases. It indicates that several lumber companies regularly submitted to the New York Central purchasing department monthly reports of competitive traffic routed over that road. Each of these reports usually received a form letter of acknowledgment with an expression of appreciation for the information.

Here and there reciprocity is directly mentioned. For example on June 5, 1928, J. J. Fox, sales manager of the W. O. Chipman Lumber Co., Meridan, Miss., in a letter to L. F. Vosburgh, vice-president of the New York Central, acknowledges an order for car decking and continued to say "This places us in a position to favor the lines we want to favor and it is our policy to favor the fellow who favors us.....we have been able to favor your line with about five cars during the last week." Along the same line is the letter from the D. L. Fair Lumber Company of Louisville, Miss., to Mr. White soliciting a large tie order and suggesting that "If given the contract we could route at least twenty-five per cent of our shipments over your road." The reply to this was that the New York Central had "already made contracts for our 1929 tie requirements," while a subsequent memorandum from the purchasing department to Mr. Menzies suggests that the latter request Mr. Stafford to "have the D. L. Fair Lumber Co. write us a letter stating the kind of lumber which they wish to sell to us and we will be glad to add their name to our list."

A complaint, dated June 13, 1929, came from A. J. Ribe, traffic manager of the Jefferson Lumber Company, Birmingham, Ala. It was written to P. F. Eiland, general agent of the New York Central, at that point, and after listing traffic routed over the New York Central, said in part "The purchase orders received, however, have not and do not justify the large amount of commercial business we are routing your way. Do not understand from that statement that we contemplate reducing our routings via N. Y. C. We are strong believers in reciprocity."

The Natalbany Lumber Company, Hammond, La., in a letter to Mr. Warne, dated February 2, 1929 listed the 1928 and January, 1929, traffic routed over the New York Central and continued to suggest "we have a right to expect a larger share of your car material business than we have been favored with during the past two or three years. The scales as you will note are badly out of balance...."

Letters on Coal Buying

The largest batch of letters related to coal purchases. A reading of them reveals that while the coal purchasing policy of the New York Central was understood by the several sellers of coal many felt that it was not being properly applied in their cases. Some thought traffic other than coal should be considered and others requested that their cases be made temporary exceptions to the general rules. Requests such as the latter were occasionally met in order to aid a mine in getting into a production schedule. New York Central fuel orders specified the mine from which the coal would originate but occasionally, on specific request, permitted shipments from mines other than those specified. No off-line coal was accepted in such changes of origin. Excess shipments were promptly called to the attention of operators who were immediately forced to equalize; another requirement rigidly enforced was that all fuel be shipped in New York Central equipment.

Statement of Policy

The fuel purchasing policy was stated by Mr. Bower in a letter dated March 27, 1929, to the Jefferson Coal Company, Cleveland, Ohio, when the latter complained of decreasing orders, as follows:

As you know, our fuel purchases are assigned in accordance with commercial traffic, and the reason you received the tonnage mentioned in your letter, during the years in question, is that your commercial traffic justified it.

As your commercial traffic builds up now, we will, of course, endeavor to increase your fuel coal, but our purchases at present are so light that it is extremely difficult for us to assign you additional tonnage at this time. However, I have asked Mr. White to send you an order for ten cars per day, to be shipped during April. We may possibly, later in the month, have to cut this down somewhat, but we will try to keep you on this basis if possible.

I hope you will take advantage of every opportunity to increase your commercial traffic, because our people are now objecting to the amount of fuel coal we are buying on the Alliance division in comparison to the commercial coal shipped on that line, and unless this commercial traffic is built up, we will be unable to continue the present orders on that division.

Reports from Operators

That reports of commercial tonnage shipped over the New York Central were expected from operators is indicated from a letter written April 4, 1927, by Mr. Bower to Charles E. Bucholz, president of the Acme Gas Coal Company, Rimersburg, Pa. The letter said "I understood that you were to write me in regard to the tonnage which you routed via our lines last year."

Some difficulty in connection with credits for shipments was experienced where an agent's name was not shown on the waybill. Such a situation, for example, brought from the C. L. Amos Coal Company, Syracuse, N. Y., the statement that "We have not exacted a penalty as yet but if we continue to fail to get proper credit from the P. & L. E. Railroad and from your own carrier, we certainly are going to raise some Cain in the coal trade." This letter was written to E. V. Reinhold, assistant purchasing agent

Threat of Diversion

On May 7, 1928, the Brown-Ward Company of Detroit wrote to the New York Central purchasing department a letter closing with the following paragraph:

Our sole purpose in giving the N. Y. C. Lines all our business has been to receive a larger amount of fuel coal and unless something is forthcoming in the near future, we are going to allot our shipments to competing lines where we have been promised a reciprocal arrangement that would give us a ratio of about one car of fuel coal to every six cars routed over their lines. It makes no difference to us whether the Michigan Central are permitted to give the entire tonnage or whether the T. & O. C. and Big Four start doing the same. The least we are entitled to on the amount of shipments would be three cars per day as compared with one car per day which we have been receiving the last four or five months. This is a very poor percentage and the one car per day which we refer to is only effective on the past four or five months. In other words, we have not averaged better than one car every four or five days for the season and we are looking to someone in your organization to get things started and show us the reciprocity we feel we are entitled to.

On May 12, 1928, a letter from the New York Central purchasing department to B. A. Aikens, purchasing agent of the Michigan Central, said of the Brown-Ward case in part as follows:

Please note the attached papers with regard to the Brown-Ward Company from whom you have apparently made some purchase.

We did not know that they were so important from a traffic standpoint as the enclosed indicates, and if we can work out an order for them next month of a car a day, will be glad to do so.

In connection with the traffic of the Graves Coal & Coke Co., Buffalo, N. Y., Mr. White on February 8, 1929, wrote to C. A. Washer, general coal and ore agent at Cleveland, as follows:

We will renew our order for February with Mr. Graves for one car a day, although it is going to require considerable figuring to find a place where it can be used without overstocking.

We would suggest that you continue working with Mr. Graves to influence a change in the routing of the coal that according to your statement moves B. & O., P. R. R., B. & L. E., and N. K. P. care of N. Y. C. to System Lines cars of N. Y. C. since in doing so the Graves proportion of our fuel tonnage would be substantially increased.

Also, on November 18, 1928, the Graves Coal & Coke Co., was advised by Mr. Reinhold to "continue to keep our traffic department informed of your activities."

Diversion Brings Order

B. J. Torbron, general coal and ore agent at Cleveland, in a letter to Mr. Reinhold dated September 14, 1928, asks consideration for a previous recommendation "that a fuel order be placed with Percy Heilner & Son, Cincinnati, fuel to be purchased from the Carver Coal Company, Charleston." This letter continues in part as follows:

We had 2,000 cars of commercial coal on which we know Percy Heilner & Son specified our routing off the N. & W. from January to June, inclusive, owing to dissatisfaction over not receiving recognition in the way of a fuel order

they ceased their efforts in our behalf in July when we received only ten cars.

We have again prevailed upon them to route their business our way but do not believe we can hold it unless some fuel is purchased from them.

In view of the traffic of both Percy Heilner & Son and the Carver Coal Co., would it not be possible to place an order for two cars a day through Percy Heilner & Son for shipment by the Carver Coal Co. from their Amelia mine on the K. & M. and in that way take care of both these friendly shippers?

Mr. White, replying to Mr. Torbron in connection with the foregoing wrote as follows:

Replying to your letter ....., with regard to fuel order for Percy Heilner & Son, of Cincinnati, Ohio.

We have mailed an order this day to their address at Cincinnati for one car of coal per working day from the Amelia Mine on the K. & M. division of the Ohio Central Lines. We are paying for the coal in this region $1.50 a net ton, f.o.b. Mines, and the Heilner order has been priced on the same basis.

It has been impossible, however, to make the tonnage two cars per day as considering present commitments, one car per day is as much as we could handle.

Traffic Protected Through Consignees

A threat of diversion, dated July 29, 1929, came from F. H. Riggs, sales manager of the Amherst-Logan Coal Corporation, to Joseph R. O'Malia, assistant general coal and ore agent at Cleveland. Mr. Riggs wrote in part as follows:

Since it apparently is not the intention of your people to favor us with any of your fuel business, I must advise that we do not propose to increase the routing of our commercial coal over your lines. The fact of the matter is, unless you do give us some favorable consideration and immediately, we propose to begin short-hauling the Ohio Central lines from Columbus.

The railroads, your lines included, started after business on a reciprocal basis and, if that is the way you intend to work I feel we are due a great deal more consideration than you have given us. I think you will recall, however, that I repeatedly advised you in our various conversations that I am opposed to reciprocal business on the basis which the railroads have gone after it.

The matter of future routing in connection with the New York Central at Columbus is entirely in your hands.

To Vice-President Vosburg, Mr. O'Malia wrote in connection with the above as follows:

After checking their statement we have reached the conclusion that they are not giving us any of their unrouted traffic as practically all of the coal routed via N. Y. C. R. R., during June, was consigned to the Consumers Power Co. at Zilwaukee, Mich., the Northern Indiana Public Service Co. at South Bend and Mishawaka and to the Wolverine Portland Cement Co. at Coldwater and Quincy. All of this traffic was secured through the efforts of our own people and we expect to handle it whether the coal is bought from the Logan County Coal Corporation or from some other coal company.

Meanwhile assurance was received from P. H. Sweeney, secretary and treasurer of the Wolverine Portland Cement Company, who on August 5, 1929, wrote to Leroy Blue, assistant general freight agent at Toledo in part as follows:

This will acknowledge yours of August 3, and note what you say about Mr. Riggs threatening to short ship you commencing August 1.

You can rest assured that he won't short ship you on any coal consigned to us, as we will not receive any coal consigned other than we have directed.

Further steps in soliciting consignees were also taken to protect the traffic Mr. Riggs threatened to divert but the threat nevertheless came again in a letter from Mr. Riggs, dated August 12, 1929. The following day he was advised that "under present conditions it is quite improbable that we will be in a position to work out a fuel order for you." Undeterred, he wrote again and said that he had deferred the threatened diversion until he knew from Mr. O'Malia "when or if at all you expect to recommend a fuel order for us." On September 6, 1929, Mr. Riggs followed up with the announcement that he had instructed his traffic department "to begin immediately short-hauling your line from Columbus whenever possible."

Another Diversion Threat

A sharp letter dated August 21, 1929, came to E. L. Whitney, general coal and ore agent at Cleveland, from Joseph Pursglove, president of the Pursglove Coal Mining Company of Cleveland, Ohio. This letter follows:

Replying to your letter of August 14, in which you state that it has always been the policy of the New York Central Railroad, in distributing their fuel orders to mines on the Monongahela Railroad, not to consider any coal except that shipped over the P. & L. E. I might state that if this is your policy, I am very glad that you wrote me this letter and told me. If you follow this policy and continue to reduce our fuel order on the New York Central, the first thing you know all of our lake coal and commercial coal which we can ship over another railroad will be moving over other lines. This policy is certainly a pinheaded policy and is not being carried out by any other railroad that I know of.

Let me hear from you about this. Write an answer and do not send someone in to this office to give our people a lot of bull and nonsense.

The remaining letters relating to coal purchases as stated previously are in the main attempts of firms to be excepted from the allotment plan either temporarily or because of shipments for which they claimed they were not receiving proper credit in the allocations. Approval of the fuel purchasing plan was, however, voiced by W. E. Rutledge, president of the Rutledge & Taylor Coal Company of St. Louis, who on May 17, 1929, wrote in a letter to Mr. Bower that he had "the highest admiration for the cleancut, fair methods in the allotment of fuel tonnage of your various roads."

Following that on coal was a batch of correspondence on miscellaneous purchases, purchases of metal products and steel buying. Letters in connection with these indicate that while traffic considerations entered the purchasing plans, the policy was less rigidly defined than that in connection with coal purchases. Occasional threats of diversions are found, and there are also indications of attempts of New York Central traffic officers to satisfy the demands of shippers.

Allocation of Cement Orders

Cement purchases like fuel orders were allocated on the basis of commercial tonnage. Cement ordered by contractors doing New York Central work was included in the allocations and contractors were notified as to where it was desired that they place cement orders. Some trouble was evidently experienced when producers did not readily receive from the contractors shipping orders on cement which the New York Central traffic department stated had been assigned to them.

An examiner's note, included in the exhibit, explains the proceedure in connection with cement purchases as follows:

The usual procedure is for the Engineering Department, through Chief Engineer, F. B. Freeman, to notify various officials of contracts placed with outside contractors. The Traffic Department (through Asst. Traffic Manager, R. J. Menzies) then suggests to the Engineering Department the Cement Company whom it considers should receive the cement contract. The Chief Engineer in turn communicates with the contractor and asks if he is agreeable to using the cement recommended by the Traffic Department. If the contractor is free to follow the recommendation, it is accepted, the Traffic Department is notified and a record made of the allotment.

Motor Transport Hearings Ended

Railroads urge regulation to stop discriminatory competition, or relief from restrictions

WASHINGTON, D. C.

ABOLITION, through proper federal regulation of common carrier buses and common carrier and contract trucks, of the rebates and unjust discriminations in rates, service and practices which they are now permitted to indulge in but which are condemned when practiced on the part of the railroads; or as an alternative, relief for the railroads from the restrictions which the government refuses to put upon their competitors, was urged by Alfred P. Thom, general counsel of the Association of Railway Executives, at the final hearing on March 17 in connection with the Interstate Commerce Commission's investigation of co-ordination of motor transportation. The hearings have been conducted by Chairman Brainerd and Attorney Examiner L. J. Flynn.

Co-ordination of the transportation systems of this country and fair competition between the railroads and common carrier motor vehicles operating for a profit on the highways cannot be brought about, he said, so long as the federal government permits such discriminations.

"A large part of the traffic of the country cannot be allowed to move subject to rebates and the granting of unjust discrimination, while these are forbidden as to the balance, for by such a course the evil against which the conscience and the purpose of the public is set, would not be eradicated.

"If, instead of being eradicated, this evil is to be permitted to continue and motor vehicles, operating for profit on the highways, are still to be allowed to indulge in rebates and to make unjust discriminations, the alternative is obvious: Relieve the railroads of the restrictions which the government refuses to put on their competitors. Give them the power of flexibility as to terms they can offer shippers which is possessed by their competitors.

"The principal reason which caused the adoption of the policy of governmental regulation of railroads was the prevention of rebates and undue and unjust discriminations. These cannot be wrong if indulged in by the railroads and right if indulged in by their competitors.

"Outside of the wrong to the shipping public involved in the giving of rebates and the handling of traffic for some shippers on terms different from and unjustly discriminatory as against others, there is a serious wrong to the railroads in allowing their competitors to take away their traffic by underbidding their known and published rates and by offering special and discriminatory advantages to shippers.

"It follows from the very seriousness of the loss the railroads have suffered from motor competition, that motor vehicles on the highways are found by the public to be a very valuable transportation facility, and to furnish a very convenient and important transportation service.

"It is universally admitted that they have come to stay—that they will be permanently an important agency in the transportation field. They will continue to be a formidable competitor of the railroads for the important varieties of traffic which they are equipped to transport. It is important to find a place in transportation which they can most economically fill.

"The railroads do not ask that this competition be removed or destroyed. All they ask, and this the interests of the public imperatively demand if the adequacy and efficiency of rail transportation is to be preserved, is that the terms of competition be equal and fair.

"It is fair to say that it is the universal judgment of mankind that the new forms of transportation cannot provide for the entire transportation needs of the public and that railroad service is, and will, so far as human foresight can reveal, continue to be, essential to the public welfare.

"The railroads are now strictly regulated by law. On the other hand, motor vehicles on the highways, engaged in interstate commerce, are now subject to no regulation whatever. The railroads are tied by regulation. This very important competitor is left free. Manifestly, the relations of motor vehicle transportation to the public and to other competing carriers, not only justifies but require proper regulation. It has been charged that the railroads are seeking to subject such transportation to impossible restrictions so as to remove it as a competitor. This is an entire misconception.

Form of Regulation Proposed

"We believe

"1. That regulation should extend to passenger common carriers and charter buses, (not to taxicabs, school buses or hotel buses) and to common carrier and contract motor carrier trucks operating on the highways for compensation or hire. We do not at this time recommend that it be applied to owner-operated trucks operated solely in the business of the owner.

"2. That they should be required to obtain from the Interstate Commerce Commission certificates of convenience and necessity and that in determining on the issue of such certificates, the Commission should give proper consideration to (a) the quality and permanence of the service to be offered by the applicant; (b) existing transportation service, requiring that a showing be made, satisfactory to the Commission, of the necessity for and convenience to the public of the proposed operation; and (c) the financial responsibility of the applicant, including adequate provision for surety, or insurance, for the protection of the public.

"3. That, under the terms of regulation, (a) an applicant to whom a certificate of convenience and necessity is granted by the Commission should be required to comply with all the conditions in each State that duly authorized State authorities impose upon intrastate operation on its highways; (b) proper accounts, in forms prescribed by the Commission, should be kept and reports be periodically made; (c) adequate requirements should be imposed to secure just and reasonable rates, both maximum and minimum, with provisions for the publication thereof and adherence thereto and proper inhibition against undue and unjust discrimination.

"4. That an opportunity should be given for rail carriers to engage in such motor vehicle service on the highways on equal terms with others and without discrimination in favor of, or against, other transportation agencies in the same field.

"In the opinion of many, the time for destructive and wasteful competition has passed and the time for co-operation and co-ordination has arrived. The object cannot be attained by destroying or improperly hampering any useful form of transportation. It must come from co-ordination; from the ascertainment of the proper sphere of usefulness of these several agencies and in so systematizing them that each will find its proper place and do its appropriate work in co-ordination with the others. The object of co-ordination will be thwarted—not advanced—by excluding the railroads from transportation service on the highways. There can be no legal or effective co-ordination between order and chaos.

"The interest of the public, in respect to transportation, lies in system and order, not in disorganization and chaos. How to introduce this order into the field covered by these new agencies of transportation by proper regulation presents difficult problems, but these difficulties are not insuperable and must be overcome. A well ordered and co-ordinated transportation system is essential to the public welfare. That cannot exist with an essential part of it strictly regulated and another important agency in the same field left unregulated."

Mr. Thom called attention to the fact that all of the recommendations made by the executives as above mentioned, with the exception of that relating to the imposition in each state on motor vehicles doing an interstate business of the same requirements as exist in that state in respect to motor vehicles doing an intrastate business, had been approved by the commission itself as to motor buses in its report on the subject in 1926.

Dr. C. S. Duncan, economist for the Association of Railway Executives, read a statement describing the situation in which the railroads find themselves, concluding as follows:

Would Regulation Bring Back Traffic to the Railroads?

1. Regulation does not imply that all of the traffic, nor even a large proportion of the traffic, now carried over the highways by motor vehicle would be forced or would gravitate back to the railroads.

2. The railroads are not advocating regulation as a means of legislating motor vehicles off the highways or as means of forcing an increase in all the rates, fares and charges of motor vehicles to the level of railroad rates, fares and charges. This is obvious from the fact that the rail carriers are asking for adequate authority themselves to operate such facilities.

3. What the rail carriers desire is regulation as a means of placing motor vehicle operation as a whole on a sound economic basis to the end that the proper sphere of operation of the railroads and the motor vehicles can be intelligently determined. When the proper sphere of operation is determined, it will result in the retirement of either the railroads or the motor carriers from those fields in which they can not compete at the rates or can not give the service provided by the more efficient carriers.

4. Regulation would require each carrier to operate on a sound basis and prevent either carrier from competing destructively for such traffic as the other could carry more economically and efficiently. The result would be an advancement of the best interests of the railroads, the motor carriers and the public. Whether or not it would mean the return of any traffic to the railroads can not now be determined with any degree of certainty.

5. The railroads believe that proper regulation of motor vehicle transportation service would probably mean the return of some traffic to the rails. They are advocating regulation, however, more particularly in order that unrestrained and unfair competition of motor vehicles may not lead to such further losses of traffic as to impair the ability of the rail carriers to supply the efficient service required by those who of necessity must depend on railroad transportation, by essential "full community" service, by national protection, security and welfare.

6. The crucial test of all proposals by railroads or others is adequate and efficient transportation service. Such service must not be broken down by wasteful competition. To prevent competition from being wasteful, it should be regulated and systematized. No temporary advantage derived from unreasonably low rates will compensate the public for the loss or deterioration of transportation service essential to its welfare.

Motor-Bus Operation

The hearing on March 16 was devoted largely to testimony on behalf of motor bus operators. R. A. L. Bogan, assistant to the president of Greyhound Lines, outlined its growth from a local enterprise in Minnesota five years ago to a nation-wide transportation service carrying more than 25 million passengers in 1930. He said the motor bus is helping to develop the travel habit among many people who never traveled before and to overcome a "certain psychological barrier" that has kept some people from traveling, just as it keeps some people from patronizing the railroad dining car, and that many bus passengers are prospective rail passengers. He spoke of the bus as not primarily a competitor of railroad service, which he referred to as a "superior" service, but as affording a special class of service which attracts people who do not care for railroad speed but who are interested in the lower fares, including some who formerly drove their own cars on long trips. He said the long haul travel has been increasing very rapidly while the short haul traffic has been decreasing, due to increased use of private automobiles which he referred to as the principal competitor of both the bus and the railroad.

Referring to the stock interests in the company held by several railroads Mr. Bogan said that it is in a position to help the railroads to save some of the expense of their hundreds of unprofitable short hauls by substituting bus service for the rail service. Many railroads have effected savings, he said, by making such arrangements, even if they have to subsidize the bus service to some extent.

Mr. Bogan said the cost of operating a 33-passenger bus ranges from 30 to 32.5 cents per mile, and that of a 21-passenger bus from 21 to 23 cents. The company's net revenue per bus mile was 0.5 cent in 1930 as compared with 1.3 cents in 1929, and he expressed the opinion that the business depression was responsible for the decline because the bus mileage operated was greater than in 1929. He described the competition experienced from "wild-cat" operators, which he said has given a "black eye" to a business which responsible operators are trying to stabilize, but said his company does not attempt to compete in rates except with a service comparable to its own and that its rates are higher than those of most of its competitors. He thought the 2-cent a mile fares established by certain railroads had not lessened bus travel.

Mr. Bogan said he was interested in federal regulation for the sake of uniformity and would favor regulation by the Interstate Commerce Commission of weights, schedules and fares. He did not think regulation would tend to increase fares generally and said that only "bad regulation" would do that, because "the largest volume of business can be done at the lowest sensible rate." He described a new bus carrying 53 passengers which is lighter than the old 33-passenger bus and no higher, wider or longer.

Discussing the taxation question Mr. Bogan showed a photograph of a Washington-New York bus carrying nine license plates, those of five states, the District of Columbia and three cities, and said the bus paid $844 in taxes a year. He showed a distribution of the com-

pany's dollar of income in 1930, of which 4.59 per cent went for taxes, exclusive of gasoline taxes, which were included in transportation expense and amounted to 3.6 per cent of the gross income. The net profit before federal income tax was 7.63 per cent.

Marcus Dow, manager of the department of safety and personnel, described the Greyhound Lines system of careful selection, training and discipline of drivers, which he said has made them safer than the drivers of any other class of vehicles. In 1930 the system operated 36,146 miles per accident, counting the most trivial accidents, and in spite of a general increase in highway accidents in 1930 it made a reduction of 50 per cent in the number of accidents in which its buses were involved, as compared with 1929. Comparing the last six months of the two years there was a decrease of 65 per cent.

Warner Tufts, of the National Association of Motor Bus Operators, gave the results of a special study of bus taxation, which has been widely circulated, and which he said was prepared as an answer to "railroad propaganda," particularly statements of railroad officials in annual reports, implying or specifically affirming that motor buses made only a negligible contribution toward the cost of the publicly-provided roadway. This showed, he said, that, measured by relative gross weight, the average bus in 1929 was paying 5.7 times its share and the average intercity bus 5.8 times its share if the average of all vehicles upon the highway was paying its share, and establishes "that, over the country as a whole, the motor bus enjoys no subsidy whatever in the matter of governmental or roadbed costs." In reply to questions by Dr. Duncan, Mr. Tufts said his reference to "enemies of highway transportation" did not refer to the Association of Railway Executives but to the statements of "certain railway officials and certain supporters of the railway attitude."

When Dr. Duncan asked if he thought it fair to refer to railway land grants as "free" land, in view of the conditions attached to the grants, he said he knew about the conditions and that "the railroads made a very poor deal," but that the grants were "intended as subsidies." Dr. Duncan also questioned his reference to "limousines and lizzies" as "producers of wealth," but Mr. Tufts declined to analyze the statement.

Electric Railways

Testimony on behalf of the electric railways was concluded on March 12 with a statement by Thomas Conway, Jr., president of the Cincinnati & Lake Erie, outlining a series of 14 specific recommendations for a policy of federal and state regulation of motor bus and truck transportation which he said would be required before a complete and effective co-ordination of motor and rail service can be accomplished. The principles of regulation should apply alike to both common carriers and contract carriers operating on the public highways, he said, and his recommendations included legislation providing for the issuance of certificates of public convenience and necessity as a prerequisite to highway operation; a system of administrative regulation by joint boards composed of state commission representatives, with an appeal to the Interstate Commerce Commission; a uniform system of accounting; fixing of length, width and weight limitations; regulation of rates, establishment of suitable station facilities, statutes governing the preparation and use of tariffs, bills of lading, etc.; protection of the public against injury and loss and damage; payment by highway carriers of a rental for use of the highways, provisions against discrimination, and power in commissions to prescribe standards of equipment. The rail carriers, he said, should be accorded the same right to own and operate highway transportation agencies as is accorded to all other persons, subject to commission regulation.

"In my judgment this condition is brought about," he said, "largely by the fact that these intrastate certificated carriers are operated without effective rate regulation, without effective co-ordination of such motor transportation with rail transportation, because of the competition of so-called freight contract carriers with certificated common carrier truck lines and because of the operation of certain motor transportation routes which are not economically justified. If all of these matters were properly regulated it is very doubtful if any substantial number of motor carriers could operate at their present rate levels at a profit. Insofar as intrastate bus lines in Ohio are concerned it can be said in general that in the main there has been or is occurring with considerable rapidity the co-ordination of bus facilities with rail facilities, largely accomplished through the purchase of bus lines by the rail carriers or by companies affiliated with rail carriers. In this way co-ordination between bus lines and rail lines will probably be carried to a conclusion."

In Ohio, Mr. Conway stated, "sworn reports filed with the public utilities commission show that a large part of both certificated bus and truck operation is conducted at a loss, without regard to any return on the investment in such facilities, and in spite of the fact that the taxes paid by such operators are substantially less than those paid by the rail carriers. It thus appears clear that the public policy of taxing motor carriers less heavily than rail carriers is directly subsidizing unfair competition with the rail carriers."

Mr. Conway's statement followed that of a series of electric railway officials representing the Chicago, North Shore & Milwaukee, the Chicago, Aurora & Elgin, the Indiana, the Northern Indiana Power Company, the Interstate Public Service Company, the Indiana Public Service Corporation, and the Fort Wayne-Lima, who discussed in detail the effects of motor competition and their efforts to meet it.

Testimony for Southern Roads

W. L. Stanley, chief public relations officer for the Seaboard Air Line, emphasized that continuance of unrestricted competition between railways and unregulated truck and bus lines would finally create a situation where the railroads would be left only with basic commodities to handle and that this must inevitably lead to higher rates on the traffic left to the rails. There is no possibility of a railroad being able to compete successfully with unregulated transportation, he said, because the truck lines are able to pick and choose the most desirable classes of freight. It seems to be universally admitted, he said, that railroads must for a long time continue to be our primary transportation dependence, for there is no thought that motor transportation can completely supplant them. Therefore it seems necessary that both federal and state governments should enact such laws governing the use of the public highways as will carry out the principles applied to railroads by the transportation act, under which no new railroad can be built to compete with existing lines except on a finding by the Interstate Commerce Commission that the additional service is in the public interest. No new railroad or motor line should be allowed to compete with existing competi-

tion, he said, except upon a finding by a public body that the traffic to be served is sufficient to afford a living wage to both the rail and the motor line. If there is not enough business for two lines the railroad, being a fundamental necessity, should be permitted to pre-empt the territory. The railroads represent a large proportion of the property in some states subject to ad valorem taxation, and if their earnings are materially decreased by competition it follows that their taxable value will be reduced. There is something wrong, Mr. Stanley said, with a system that requires a man to pay a part of the cost of doing business of his competitor, but the railroads not only pay part of the taxes going into public roads and a much larger share of their earnings to maintain their own roads than do the motor vehicle operators, but the railroads even have to pay a gasoline tax on the gasoline used in their shops and section cars the same as that paid by the motor vehicle operator using the public roads. Questioned by Mr. Chandler, who sought to show that the railroads are seeking either to raise the rates of the truckers or drive them out of business, Mr. Stanley said he was trying to prevent a situation that would require an increase in railroad rates generally. He said he had no doubt that the railroads would go to store-door delivery some time but that such an experiment would not succeed so long as the competitors are unregulated.

G. Z. Phillips, passenger traffic manager, and R. T. Etheridge, assistant general freight agent, of the Seaboard, described the motor competition in its territory and the efforts made to meet it by improving service and reducing rates in some instances. Mr. Phillips said that the Motor Transportation Company of the South had been established in 1927 but had been sold in 1930 after having shown an approximate loss of $75,000, partly offset by savings of $12,000 from the discontinuance of rail service. Some passenger business had been attracted back to the railroad by special excursion and other reduced fares but only at a sacrifice of revenue. Mr. Phillips said that it is especially difficult to meet the bus competition because the buses are free to cut rates for parties while the railroad cannot do so on sufficiently short notice. He expressed the opinion that with proper accounting most of the bus operations would be found unprofitable and said that opinion was borne out by the fact that the ownership of buses changes hands so frequently. Mr. Etheridge described an experiment of reducing freight rates on cotton for a full season but said that the trucks merely cut under the rates and continued to take an increasing amount of traffic, even away from the weighing platforms maintained by the railroad.

J. F. Dalton, traffic manager of the Norfolk Southern, described the situation confronted by that road as a result of motor competition, saying he doubted if the commission had ever had a more serious situation before it. He estimated the passenger revenue loss in 1930 at $308,000 and the freight loss at $1,520,495, saying the road had a deficit in 1930 and that the prospects for 1931 are worse. Unregulated boat lines, he said, are also a factor in the competition, as they have made joint arrangements with truck lines that deliver freight far into the interior of North Carolina and Virginia. Store-door delivery, he said, represents too great a hazard for the Norfolk Southern to undertake it.

J. B. Mordecai, traffic manager of the Richmond, Fredericksburg & Potomac, described the motor transportation faced by that company and its efforts to retain passenger traffic through a subsidiary bus line.

G. S. Lee, vice-president of the Railway Express Agency, Inc., submitted statistics to show the inroads on express revenues resulting from motor competition for intrastate traffic. The intrastate revenues decreased 36.45 per cent from 1921 to 1929, while the interstate revenues increased 8.97 per cent.

J. R. Van Arnum, assistant secretary and traffic manager of the National League of Commission Merchants, gave an outline of the views of members as indicated by their replies to a questionnaire. He said it is apparent that much of the truck business is a duplication of services that could better be performed by the railroads and that it involves many abuses, but that it had been forced to some extent by railroad rules and regulations as to packing, etc.

"It will thus be seen," he said, "that growers, shippers and receivers agree that some form of regulation is necessary to correct abuses that have developed, without however crippling legitimate growth of truck routes where they perform a necessary and economical function. It is apparent that much of the truck business is duplicating services that could be performed better by the railroads, if they would perform the service in accordance with commercial requriements, instead of attempting to make the commerce fit their rigid, and often stifling rules, regulations, rates and practices. The railroad still holds the long distance traffic in perishable as well as other commodities partly because of the necessity for refrigeration on long hauls, which is not required on short hauls taking a day or less, but with the development of efficient refrigerator trucks, which will be only a matter of time, it is probable that the carriers will have to face the loss of tonnage in increasing quantities. It is my information that the development of a refrigeration system that will be light and compact, dispensing with ice, and to be used on trailer bodies that can be removed from motor truck proper, is well under way and this would overcome the deficiencies existing at present by affording protection in transit for indefinite periods of time; with transit privileges and storage without removal of lading for short periods comparable to present railroad practices under demurrage rules. It would remove the worst fault of truck transportation of perishables, which does not permit notice of arrivals to enable orderly marketing practises to prevail and the necessity for disposing of shipments on day of arrival regardless of market conditions."

William McN. Knapp, freight traffic manager of the Central of Georgia, and H. D. Pollard, vice-president and general manager, described the effects of motor competition on its traffic, showing it had caused reductions in the number of employees and the closing of stations.

Col. Joseph C. Bonner, president of the Bonner Railwagon System, Inc., described a system he has been developing in service out of Cleveland, Ohio, consisting of a special car on which are carried demountable truck bodies, fitted with rollers and also removable wheels, which are unloaded at stations with the aid of concrete ramps and may be hauled away by trucks as trailers or semi-trailers or loaded on a truck by use of a crane. The plan also includes a novel unloading system.

Benjamin F. Fitch, president of the Motor Terminals Company, New York, described the development and operation of a demountable-body motor truck service established in connection with the Cincinnati & Lake Erie Railroad by the Cincinnati Motor Terminals Company and Cargo Transport, Inc., under a plan by which, he said, rail movement of shippers' truckloads could be handled at a reduced cost, thus ultimately replacing practically all large box car movements of merchandise freight. "As already demonstrated in a small way," he

said, "railroads can both recapture highway traffic losses and continue to function as the foundation of wholesale transportation, underwriting the retail extensions of their service, less injustice to the vested rights of any interest and with assurance of returns for all, proportionate with contributions to the co-ordinated transportation program."

W. M. Clark, vice-president of the Order of Railroad Conductors, read into the record a statement by E. P. Curtis, president of the brotherhood, calling attention to the vital interest of railway employees in the limitation of subsidized transportation of all kinds, by bus, truck, waterway and pipe-line, in competition with the railways, and urging regulation of all forms of transportation, in the same way that railways are regulated, in justice to the people who are taxed to maintain the public highways and for the protection of the "vested interests" of the railway employees. Such regulation should include matters pertaining to safety, he said, and should also provide for a rental for the use of the highways. He said the 21 railway labor organizations have been endeavoring to arrange for conferences with the railway executives for the purpose of outlining a program of opposition to unfair subsidized competition, to protect the railway organization as a whole, and also to "talk frankly about some internal problems," but that not enough railway executives have yet responded. He criticized railroads that have gone into motor transportation themselves on the ground that operation of motor vehicles deprives the railways of business and their men of employment and said that it was unfortunate that many of them are advocating co-ordination of railway and highway transportation. "I imagine the taxpayers will soon tire of building highways for the use of the railways," he said, "and those who hold this view should be required to build their own highways." He said he was forced to conclude that the railway executives are making a great mistake in not hastening the development of a defensive program but that he was loath to believe that they are "asleep at the switch."

W. H. Chandler, traffic manager of the Merchants Association of New York, appearing on behalf of the Shippers' Conference of Greater New York and the Chain Store Traffic League of New York, criticised the railway executives for "chasing the profitless passenger traffic" by engaging in bus transportation while failing to engage in truck transportation and to furnish store-door delivery. He also criticised their "misleading propaganda" for "strangulatory" legislation and their statements that truck operations are unprofitable, saying that they have not tried them enough themselves to know and that many large truck lines have been in existence for a long time and are growing. He said the Pennsylvania had made the most constructive suggestions yet made at the hearings and that if the railways and the shippers could get together for discussion on that basis the Interstate Commerce Commission would not have to bother itself with suggestions for legislation, particularly suggestions for state legislation. He said the railroads seem to think the public is morally obliged to support them and to pay higher charges for inferior service, and that the trucks are in many cases offering lower rates for store-door to store-door service than the rail rates for station-to-station service while the railways are increasing their class rates. He contended that the railways serving New York could save $1 a ton by trucking freight from the rail heads on the New Jersey side instead of maintaining expensive piers and floating equipment. Mr. Chandler said he would agree with the suggestion of some railway witnesses that the roads be allowed to make joint rates with the motor operators but that he did not like their suggestion that the railways be permitted to designate those with which they would make joint rates.

Store-Door Delivery in Canada

Lorne McDonald, freight traffic manager of the Canadian National, described a store-door delivery service which the Grand Trunk has had in operation since the 80's, although he said it had been extended to additional cities, east of Detroit, in recent years. The company had made arrangements with cartage companies in the principal cities which pick up and deliver freight for stated charges in addition to the rail rates, fixed by agreement with the railroad, acting as agents for the railroad. This service is optional with the shipper, who is free to make arrangements with other trucking agencies, and although he said the service had been generally satisfactory to the shippers it had by no means protected the company against the competition of "free-lance" truckers and as a result the railroad has lost a large part of its merchandise business. The cartage company is responsible for the freight while in its possession. The rates vary somewhat in the different cities, he said. In Montreal the rate is 5 cents for carload freight, 7 cents for l.c.l. freight, and 30 cents for "smalls" with a minimum of 300 pounds. In Toronto the carload rate is 4 cents and the l.c.l. rate 6 cents. In some of the smaller cities the carload rate is 3½ cents. In reply to questions by Mr. Chandler, Mr. McDonald said that the principal advantage to the railroad is that freight stations are cleaned up more quickly and some cars are released more promptly.

C. A. Skog, general freight agent of the Grand Trunk Western, described the truck competition encounterd by that road in Michigan which he said had reached such a chaotic condition that it was having a serious effect on both the railroad and the common carrier trucks. He cited figures to show that the 139 common carrier truck operators in Michigan in 1929 earned less than their expenses and said that they are subjected to competition almost impossible to meet from the contract truckers, many of whom, he said buy trucks on monthly payments, which they often are unable to meet. In an effort to make expenses they will quote almost any rates, particularly for return trips, but when they are unable to complete payments some one else takes their place and the same practice continues. He cited one instance in which a trucker quoted a rate of $10 for a load for 130 miles and another in which a trucker offered to haul a load for 140 miles for the price of a tire to get his truck home. A large manufacturer near Detroit received an offer from a trucker to handle his Detroit freight free if it would give him its Chicago business at rail rates. This unrestricted competition, Mr. Skog said, is leading to a deplorable situation for common carrier transportation of both kinds and as a remedy he advocated regulation of the operations of all trucks of over 3,000 pounds. He said he had set that minimum in order to exempt farmers' trucks and other owner-operated vehicles in private service. Mr. Skog said that the Michigan roads are so congested with busses and trucks as to make it very dangerous for private automobiles.

Clifford Older, a consulting civil engineer, formerly an engineer for the Illinois highway department, appeared on behalf of western railroads to show that the construction of roads suitable for the traffic of busses and trucks is much more expensive than that of roads that would be satisfactory for passenger automobiles and ordinary trucks. He presented figures to show that concrete highways in Illinois costing $263,546,000 could have been built for $187,532,400 with sufficient strength to carry ordinary passenger and truck traffic. Whereas

T. H. McDonald, director of the Bureau of Public Roads, had given testimony attributing to weather and soil conditions much of the destruction of public roads often attributed to heavy truck traffic, Mr. Older said there are no winter conditions that would cause a four-inch concrete slab to curl up like a piece of paper.

Former Senator N. B. Dial, of South Carolina, now president of the Eastern Public Service Corporation, which owns a number of bus lines in the Shenandoah Valley region, appeared on behalf of "the unrepresented small stockholder of the intrastate bus operators" to urge a policy of federal regulation which will protect such operations from unrestricted competition of lines which escape state regulation. He said he had got into the bus business through accident and that the small lines owned by his company had been reasonably profitable until three larger interstate lines had entered the field and created so much competition that there is no opportunity for profit for any one.

L. E. Wettling, statistician for the western railways, put into the record an exhibit comparing the total rural highway expenditures in 13 western and southwestern states in the years 1926-1929, $1,836,150,000, with the total license fees and gasoline taxes paid, which amounted to $724,072,000. For the United States total expenditures were $6,126,559,000 and fees and taxes $2,443,129,000, or 39.88 per cent of the expenditures. He also explained the land grant situation, showing that after the government had induced a railroad to build by granting it alternate sections of land it was often able to sell for $2.50 an acre land that it had not previously been able to dispose of at $2.50 an acre, and that there was also a *quid pro quo* in the form of perpetual taxes and conditions as to transportation for the government free or at reduced rates. Mr. Wettling also showed that a large part of the original cost of the highways had been paid from general property taxes before the gasoline tax was imposed and that the very large cost of city streets entered into the public highway system used by busses and trucks.

More Liberal Attitude on Part of I. C. C. Asked

Robert N. Collyer, chairman of the Trunk Line Association, appeared on behalf of the traffic executives of the eastern railroads to urge a more liberal attitude on the part of the Interstate Commerce Commission in its regulation of railway freight rates so as to enable the roads to meet the changing conditions caused by motor transportation. He asked that the railroads be allowed to meet such competition where it exists without undue disturbance of their other rates, in part by a more liberal interpretation by the commission of the statutory prohibitions against discrimination and in part by relief from some of the commission's requirements as to the publication of freight tariffs. He said that railroads which desire to use motor trucks in substitution for local freight service should be required to observe the published tariff of rail charges only for transportation when the rails are used or between the rail stations when the highway is used. He said the eastern roads are just getting ready to discuss with shippers in New York a proposal for the establishment of pick-up and delivery service.

The eastern railroads, he said, are not waiting for the commission to tell them what to do in meeting the competition created by highway motor vehicles. On the contrary, they are trying to develop by experiment where changes in rail transportation conditions will enable them to meet the outstanding characteristics of motor transportation. Furthermore the eastern roads are finding it necessary to voluntarily reduce their rates on some of their most remunerative traffic in the higher classes, even though the rates on such traffic would have been increased under findings of the commission in the eastern class rate case. He cited the proposed reductions in rates on automobiles, both by classification reduction from 110 per cent of first class to first class and by the publication of specific commodity rates.

As rate changes of great moment are thus confronting the railroads, Mr. Collyer said, experience leads them to believe that questions will come before the commission which will require it to recognize what is confronting them in respect of this competition, and, on reasonable showing of the railroad need of assistance to modify various rules, precedents and even principles which it has evolved to the extent that may be justified.

Referring to the commission's revision of eastern class rates he said that long haul rates are being decreased to an important extent, this traffic being the least open to motor competition, and that rates on short haul traffic are to some extent being increased, this traffic being most open to motor truck competition, while rates on the upper classes of freight are being increased and rates in the lower ranges are being reduced where motor truck competition is less destructive of railroad revenue.

"In other words," he said, "while the commission is reconstructing the railroad rate fabric as if there were no competitive rate elements other than between persons, places and railroads, a new and unregulated means of transportation is being evolved by the public and the state whose competition the railroads must contend with. The commission must come to recognize that this new element will necessitate a change in the theories by which it has been reconstructing the national railroad rate fabric."

When Mr. Chandler asked if the roads had brought the matter of motor competition to the attention of the commission in the eastern class rate case, Mr. Collyer said the commission's report was based on hearings held several years ago, but that it had been mentioned in their recent petition for a reconsideration, which was denied.

* * *

The Canadian Pacific's New Wolfe's Cove Tunnel, Quebec, Que., Nearing Completion

Just over one mile in length, this tunnel has been built under the Plains of Abraham at a cost of some $2,000,000, to connect the main line of the C. P. R. with the railway's new wharf at Wolfe's Cove. It is to be opened for traffic in time for the arrival of the new C. P. R. steamer "Empress of Britain" on June 2.

New Design of Cash Machine

A NEW low-priced cash machine designed to meet the requirements of railway ticket offices, freight offices, restaurants and dining cars has been placed on the market by the Burroughs Adding Machine Company. This machine is asserted to be a new development in cash register construction and operation. It registers all cash transactions, and also contains a locked-in detail tape that provides a permanent record of each day's business.

The keyboard of the machine contains a sufficient number of keys for the exact registration of amounts. The lowest-priced model registers any amount from one cent to $999.99. The keyboard also contains a number of descriptive keys. These identify all items as they are

The New Cash Machine

printed on the detail tape, and show number of persons operating the machine, classification of sale, amount, or such description as is indicated by the transaction. Keys may be changed to meet various requirements.

Cash is protected in the new machine by means of the locked-in detail tape, and also by means of locked-in totals and grand totals of daily transactions. This construction makes it impossible to alter the record of a sale after it has been recorded. Both tape and total figures can be obtained only by unlocking the machine. Other features include a full-sized standard cash drawer, hand or electric operation, and a selection of colors and finishes.

TWO STRETCHES OF THE PERSIAN NORTH-SOUTH LINE, built by a German consortium, have been virtually completed, according to press reports from Berlin. The line will be opened for traffic, it is expected, on April 1, and is 81 miles in length. This stretch is a test line, the railway to be extended gradually over a period of years. Construction is understood to have been quite satisfactory to the German government, so that negotiations are being actively prosecuted for the extension of the line more than 200 miles to the region of Teheran. The southern portion of the line, for which a contract had been made with an American group, is now being pushed by the Persian government's own organization, after a series of differences with the contractors.

Looking Backward . . .

Fifty Years Ago

The consolidation of the American Union and the Atlantic & Pacific telegraph companies with the Western Union has been practically completed, and nearly all the offices of the American Union throughout the country have been closed, while all those of the Atlantic & Pacific will be closed April 1.—*Railway Age,* March 24, 1881.

The National Association of General Passenger and Ticket Agents, at a meeting at New York on March 9, adopted a resolution abolishing third-class tickets. The resolution stated that for all lines not furnishing different or separate accommodations for second- and third-class passengers, there shall hereafter be but two classes of coupon tickets, first and second class.—*Railway Age,* March 24, 1881.

The tremendous earnestness of the movement to build railways into Mexico is indicated by the statement that the Mexican National Company [now part of the National Railways of Mexico] has contracted for a large number of locomotives and several thousand freight cars to equip the proposed road from Laredo, Tex., to the City of Mexico, and to Manzanilla on the Pacific coast. The Texas & Pacific and the Galveston, Harrisburg & San Antonio [now part of the Southern Pacific] are both expected to reach El Paso, Tex., within a year, and from that point the Mexican Central [now a part of the National of Mexico] is rapidly pushing a line south toward Mexico City to meet the work in progress from that end.—*Railway Age,* March 24, 1881.

Twenty-Five Years Ago

The Railroad Commission of Georgia in its annual report recommends to the Georgia legislature, among other things, an enactment to compel railroads to put on extra passenger trains when the advertised schedule departure is delayed an unreasonable time; also an enactment to compel offending roads to pay penalties without recourse to the courts to recover.—*Railroad Gazette,* March 23, 1906.

A remarkable contest has been going on since last April between the engineering forces of the Southern Pacific and the Colorado river in Southern California. Although a large construction force has been endeavoring for the past six or eight months to control the stream, so far the work has been unsuccessful, and the Colorado is still discharging its entire flow into the great basin, the Salton Sea, instead of into its normal channel in Northern Mexico and into the Gulf of California. After the Colorado broke through into the old channel leading to the Salton Sea the Southern Pacific experienced its first trouble in July, 1905, when a rise of from 2 to 2½ inches daily reached the railroad's tracks which border the inland sea. High water in the Colorado resulted in further rises in the "sea's" level and various "shoo-fly" tracks were submerged. On February 12 a new line 39 miles long, and 50 ft. above the Salton level and 200 ft. below sea level, was placed in service as a permanent line.—*Railway Age,* March 23, 1906.

Ten Years Ago

H. T. Newcomb has been appointed general auditor of the Delaware & Hudson, with headquarters at New York.—*Railway Review,* March 19, 1921.

The Supreme Court of the United States has affirmed the decisions of the Court of Claims holding that the Oregon-Washington Railroad & Navigation Company and the Western Pacific are not entitled to recover the difference between the amounts paid by the roads to the government for the transportation of the effects of army officers—being the rates for such transportation over land-grant roads fixed in the land-grant equalization agreement—and the usual commercial rates.—*Railway Age,* March 18, 1921.

Communications and Books...

Vote "No!" on Road Bonds Until Buses, Trucks Pay Fairly

WERNERSVILLE, Pa.

TO THE EDITOR:

Trucks and buses have no doubt come to stay. At the same time our great railroad systems must be encouraged to remain in business, if we expect as a nation to prosper in the future as we have in the past. As the matter stands today many competent authorities have clearly shown that the railroads are much in need of relief, and are working at a heavy disadvantage when compared with other kinds of transportation.

There is one angle of this problem which seems to be overlooked by most everyone. This is the taxpayers' end of it. The people vote large bond issues to pay for fine highways which we build. We pile up more and more indebtedness each year for that purpose. Then we allow heavy buses and trucks to pound them to pieces many years before those bonds are paid off. We then issue more bonds to pay for re-building them, and so we keep on and on.

We are building and destroying roads which future generations, children yet unborn, will be paying for. This is not a theory, it is a stark naked fact. Now the question is, where is it all going to end? It cannot go on that way forever.

The taxpayers burden is already a heavy one, but it is nothing to what it will be in the years to come if something isn't done about it and that something must be done by the ordinary individual taxpayers themselves. They must insist on their national and state representatives taking the matter up and enacting laws that will require the bus and truck operators to pay an adequate share of the maintenance and replacement cost of the expensive roads which they use and destroy. When our lawmakers do that they will at the same time be taking a long step toward justice for the railroads. I believe that if this phase of the situation were kept in the public mind, by continued repetition in magazines and newspapers, it would produce the desired result, because many of us think we have about reached the limit of endurance in the matter of taxes.

In your issue of January 17, I noticed an item to the effect that the National Association of Motor Bus Operators announce their determination to fight the railroads by launching a campaign to "educate" the public in the matter. I am sure the public needs considerable education on a matter that so seriously affects them, but it will be a pity if they allow themselves to be "educated" by the above organization or any of those affiliated with them.

In this argument, the defenders of the bus and truck usually give elaborate sets of figures, purporting to show that they are already paying plenty for the use of the highways. But they usually give aggregate tax figures for all classes of automobiles, so as to make a strong case against the railroads. Regardless of that, they cannot truthfully deny that the bus and the truck are the great destroyers.

It can easily be proven that the damage is practically all done by the heavy duty commercial vehicles. In that respect there should be no confusion. The damage done by them is out of all proportion to the tax they pay and to the relation they bear to the lighter types of automobiles. By all means let us encourage education, but see that it is the right kind—the kind that will make the people realize that a very large and increasing portion of their heavy tax payments are being wasted, for the above reasons, on road construction and maintenance.

The people should oppose any more bond issues or financing of any kind for road building purposes, until this much needed protection is provided by law.

GEORGE P. HASNAUER.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Four Cents An Acre, by George Oudard. The Louisiana Purchase which added about 756,961,280 acres to the area of the United States and about 80,000 persons to the population, its background, and its price. French archives were largely used as source material. 316 p. Pub. by Brewer & Warren, Inc., New York City. $3.50.

Proceedings of the First and Second International Conferences of Agricultural Economists, 1929 and 1930. The papers on agricultural cost accounting, agricultural situation in various countries, marketing problems, economic factors affecting milk and other supplies of large cities, and tariff and farm relief may be of interest. 350 and 950 p. Available from Department of Agricultural Economics and Farm Management, Cornell University, Ithaca, N. Y. $2.50 and $3.50.

Report of the Committee on the Conservation and Administration of the Public Domain to the President of the United States. January 1931. "Originally the United States owned, exclusive of Alaska, 1,441,436,160 acres of public lands, of which on June 30, 1904, there remained, unreserved and unappropriated 736,836,402 acres. Since that date, grants to newly admitted States, entries under the various homestead laws, and other disposals, reservations, aand withdrawals have reduced that area until on June 30, 1930, there were, subject to entry under all applicable public-land laws, 178,979,446 acres, distributed by States, as follows [Table follows]" p. 9. "This report deals with the future disposition of that remnant of a once vast domain." p. 10. 85 p. Map. Pub. by U. S. Govt. Print. Off., Washington, D. C. 20 cents.

Standards Yearbook 1931, compiled by the National Bureau of Standards. See Index under "Rail" etc., Bureau of Standards Miscellaneous Publication No. 119. 399 p. Pub. by U. S. Govt. Print. Off., Washington, D. C. $1.00.

Survey of Land-Grant Colleges and Universities, by Office of Education, Department of the Interior, directed by Arthur J. Klein. Something of the history, control, business management and finance, teaching accomplishments, extension services, research, etc., of the 69 land-grant colleges and universities. 2 vols. Pub. by U. S. Govt. Print. Off., Washington, D. C. $3.00.

Periodical Articles

At Ninety, Justice Holmes Marches On, by R. L. Duffus. "When he was born, on March 8, 1841 . . . the railway mileage of the country was less than one-sixtieth of what it is today; William Henry Harrison was enjoying his first and last month as President; Texas was an independent republic; the electric telegraph was six years old . . . Chicago was a village of 4,500 people. If anyone wished to go from New York to San Francisco—and almost no one did—he had to spend between four months and a year on the journey . . ." p. 3. New York Times Magazine, March 8, 1931, p. 3, 16.

The Bo + Bo Locomotives for the Vascongados Railway. Describes new electric locomotives. Brown Boveri Review, February 1931, p. 99-102.

A Pioneer's Centennial—George Mortimer Pullman 1831-1931. A contribution to the history of passenger transport. Illustrated. Pullman News, March 1931, whole issue.

Steady Work Through Co-operation, by Otto S. Beyer. Results of union-management co-operation. American Federationist, March 1931, p. 280-284.

Work of the United States Board of Mediation 1929-1930. Cases handled, problems and accomplishments. Monthly Labor Review, January 1931, p. 146-147.

Odds and Ends . . .

An International Station

The railway station at Eisenstein is probably the only one of its kind in the world, in that the building itself is situated in two countries. The boundary line between Germany and Czecho-Slovakia passes directly through the middle of the station building.

The Train Announcer Goes Radio

"And now, folks, give the 5:15 Speedunk Express a trial . . . not a jolt in a carload . . . delicious scenery from clean windows . . . a peppy ride . . . when the musical note of the gong sounds, it will be exactly 5:15, and the Speedunk Express will leave from track 16, one of our best tracks . . . your announcer is Percival Jones."

A Veteran Envelope

The Western division of the St. Louis-San Francisco claims a record of some sort for saving stationery. They exhibit proudly, in support of their claim, an envelope which has been traveling back and forth on the division for more than ten years, the earliest record of transmission stamped on it being July 17, 1920. It has been estimated that this envelope has made something like one hundred trips back and forth, and it is still usable.

Are You A "Siderodromophilie?"

When a Frenchman calls you a great big "siderodromophilie" it really isn't correct to get mad. A French law court has just decided that this six-cylindered jawbreaker means excessive love of railroad riding. A man recently was arrested for riding on a government railroad train without a ticket. Taken before the judge, the man explained that he was suffering from "siderodromophilie." The court, baffled and embarrassed, called in a medical man, who explained the term meant undue desire of "choo-choo" riding. Just the same the man was fined for gratifying his desire without first buying a ticket. If one can get that far, the accent is on the last syllable.

Champion Sweeper

Thomas Smith of Syracuse, N. Y., whose job it has been to sweep and tidy up the 17-stall enginehouse of the Delaware, Lackawanna & Western at that point, six days a week for 30 years, has been relieved from active duty. During all this time, Smith never rode on a train outside of the yard area, and never was absent for a day from his job. Sweeping was his job and sweep he did. His outlook on life was unusually cheerful and he went about his daily work with marked enthusiasm to the end. He swept the enginehouse 9,360 times, wearing out approximately 780 brooms, and swept an area equivalent to a side walk, 12 ft. wide, reaching from New York to San Francisco. This record should crown him as the champion sweeper of the nation.

First Roller Bearing Train

When the Merchants Limited, consisting of 12 Pullmans and 2 diners, and hauled by the Timken Roller Bearing Company's experimental locomotive No. 1111, made the 156.8 mile run from New Haven, Conn., to Boston, Mass., recently, with a similar return run on the following day, the New York, New Haven & Hartford earned the distinction of being the first railroad in the world ever to operate a train completely equipped throughout with roller bearings. Although there have been numerous other instances where all the cars of a train have been equipped with roller bearings, and, although the Merchants Limited is not the first passenger train to be hauled by the Timken locomotive, this is the first time that the locomotive has pulled a complete train of cars, all of which were equipped with roller bearings.

Five Times 'Round the Earth

Five times around the earth at the equator, or about 125,000 miles, is the daily average mileage covered by the cars of the Mitropa, the central European sleeping and dining car company, according to a report just issued. This company operates over the railways of the various companies and owns more than 650 cars, having its own car and repair shop. It is the biggest hotel and restaurant enterprise in central Europe, serving more than 40,000 travelers daily in its dining cars, or some 3,000,000 a year. More than 3,000 beds have to be made up every night for the guests of the Mitropa's rolling hotel. The company has also extended its activities into the air, in that it conducts restaurant service at the airports of Berlin and Vienna. These restaurants also operate the catering service in the airplanes and the stewards on these planes are Mitropa employees.

Railroad Broadcasters

ROANOKE, VA.

TO THE EDITOR:

In the *Railway Age* for February 28, 1931, page 467, you stated that C. H. Swanson, train dispatcher for the Louisville & Nashville at Etowah, Tenn., has probably the only broadcasting station (presumably what is known as an amateur radio station) that is operated by a railroader. The writer has owned and operated an amateur radio broadcasting station since April 15, 1912, having operated under the call signal 3WE before the War, and, since, under the call of W3CA. The station operates on both the Continental code and the radiophone. The writer knows personally at least 25 other railroaders who own and operate amateur radio stations. I have also communicated with a dozen or so others operating similar stations who are employed by the railways. Therefore, I lay claim to seniority in this "ham" radio business.

J. F. WOHLFORD,
Train Dispatcher, Norfolk & Western.

High Excitement in Russell

H. McGillicuddy Armbruster is a watchful citizen of Russell, Ill. Nothing that occurs in Russell ever escapes Armbruster's eagle eye. Not so long ago, he chanced to espy, one moonlight night, a mysterious stranger drive into Russell, and perform what were to Armbruster strange and mysterious antics along the line of the Chicago, Milwaukee, St. Paul & Pacific, which passes through Armbruster's home town. Now Russell, Ill., is but a good-sized stone's throw from Rondout, Ill., which, not so many years ago, was the scene of an extremely celebrated train robbery. Remembering this, Armbruster's suspicions were at once aroused, and he telephoned to Sheriff Robinson of Kenosha county, Wisconsin, just over the state line from Russell, giving a complete description of the mysterious stranger, and of the black sedan which he was driving. Armed to the teeth, Sheriff Robinson and his trusty deputies set forth, and, sure enough, they came upon a black sedan presently. It was being driven furiously, but the intrepid sheriff swung his car across the road, and, presently, the oncoming sedan stopped—in the ditch. From the wreckage crawled the maddest trio in the world at the moment. They were Sheriff Lester Tiffany of Lake county, Illinois, and two deputies, who had also been notified by Armbruster of the strange doings at Russell, and were also on the trail of the mysterious stranger. And the mysterious stranger himself—what of him? Well, he happened to be a trainmaster of the C., M., St. P. & P., out on his routine duty of making an efficiency test.

NEWS

Canadian Commission Issues Annual Report

Substantial improvement in safety is one of outstanding features of year

During the calendar year 1930 the Dominion Railway Board held 64 public sittings at which 162 applications were heard, according to the annual report tabled in the House at Ottawa by Hon. Dr. R. J. Manion, Minister of Railways and Canals. The total number of applications and complaints was 3,664, while the number of orders issued by the Board was 1,923. Tariffs totalling 34,587 were received and filed during the year, and of these 24,805 were freight tariffs, 7,421 were passenger, 1,474 were express tariffs, 793 were telephone tariffs, 75 were sleeping and parlor car tariffs, 7 were telegraph tariffs and supplements and 12 related to bridge tolls. From February 1, 1904, to December 31, 1930, the total number of tariffs received by and filed by the Board was 1,612,825. In the year 1930 the Board ordered contributions from the Railway Grade Crossing Fund towards the protection of 1,299 crossings. There were 202 highway diversions constructed which made it possible to close 155 crossings and eliminate traffic from 84 crossings.

Accidents totalling 2,427 and involving 425 persons killed and 2,512 persons injured were reported to the Board during 1930, as compared with 2,780 accidents in 1929 when 426 persons were killed and 2,954 persons were injured. In 1930 seventeen passengers were killed, as compared with 16 in 1929, while in 1930 three hundred and eight passengers were injured as compared with 349 in 1929. In 1930 the number of employees killed was 95, as compared with 105, while the number of employees injured was 1,462, as compared with 1,891, both showing substantial decreases. There were 313 others killed in 1930 of whom 168 or 53 per cent were trespassers. Crossings protected by gates accounted for 22 persons killed and 76 injured. Crossings protected by bell accounted for 94 killed and 250 injured. Crossings protected by lightning flash signal accounted for 4 injured. Crossings protected by watchmen accounted for 11 killed and 55 injured. Crossings unprotected accounted for 530 killed and 1,850 injured. There were 340 accidents at protected crossings, covering 127 persons killed and 385 injured.

"Once more, it is respectfully suggested that the Interstate Commerce Commission in the course of its efforts to ameliorate railroad burdens might well invite the Inland Waterways Corporation to show cause for a continuance of the present differential in its rates. It is perhaps not a matter of a great many dollars but it is a matter of the greatest importance in the light of principle."

—Thomas F. Woodlock in the Wall Street Journal

Fruit by Truck from Florida to Chicago

The handling of fresh fruits by truck from Florida was extended during the week ending March 14 when the first shipment, three truckloads of oranges, was hauled from Florida to Chicago in three days. During the 30-week shipping period ending on March 7, a total of 1,680,000 boxes of fruit were trucked out of Tampa, Fla., as compared with 1,000,000 during the same period last year. This is at the rate of 8,000 boxes a day.

Parliamentary Rate Making in Canada

Of the many private members' resolutions which clutter the proceedings of the House of Commons at Ottawa each session there is one this session of special interest in railway circles and likely to produce a warm debate and possibly some appropriate action by the Government. This resolution, sponsored by Thomas E. Donnelly, a Saskatchewan Liberal member, calls for a change in the freight rates on grain and grain products so that the domestic rate on these commodities will be the same as the export rate "plus a reasonable switching charge." This change has been the subject of hearings before the Railway Board at various times and recently a deputation from the Maritime provinces interviewed Hon. Robert J. Manion, Minister of Railways, on the question. Both the prairie provinces and the Maritime provinces are interested in the proposed change. Dr. Donnelly, who sponsors the House resolution says that farmers in Ontario and the Maritimes are importing corn from Argentine for feed when Western farmers are burning barley in their stoves through lack of purchasers and he says Eastern Canada could feed this barley, now used for fuel, if the domestic freight rate on such products was on a parity with the export rate.

British Railways Reduce Wages

Recent decision of National Wages Board allows cuts of from 2½ to 5 per cent

The report of the National Wages Board of Great Britain on the request of the four major British railways for alterations of rates of pay and working conditions designed to reduce operating expenses by some £9,500,000 ($46,170,000) a year, as issued on March 5, has, in general, upheld the claims of the railway companies by providing for reductions of 2½ per cent in nearly all wages and some additional reductions of the same amount for employees in the higher-salaried grades. Even with accompanying changes in working conditions productive of still further net reductions, however, the new scale will not produce, during the year that it is to be in effect, the full saving for which the companies had asked. While no definite figures on this point are as yet available, the London Times writes as follows: "When in 1928 there was an abatement of all wages and salaries, including shopmen's wages, by 2½ per cent, the saving to the companies was estimated at £3,000,000 a year. The shopmen do not come within the scope of the present findings. The savings from the general reduction will therefore be much less than £3,000,000. What will be the savings from the second 2½ per cent reduction on the higher wages and salaries cannot at present be indicated, but the effect of both reductions must obviously be very much below £6,000,000."

The findings of the Board, in detail, are as follows:

OVERTIME.—*Day.*—The rate of time and one-eighth shall be substituted for time and one-quarter. *Night.*—Time and one-quarter shall be substituted for time and one-half.

NIGHT DUTY.—Time and one-eighth shall be substituted for time and one-quarter.

SUNDAY DUTY.—*(Also including certain holidays.)*—Time and one-third shall be substituted for time and one-half. Where double time is paid, time and two-thirds shall be substituted.

HOURS OF WORK.—A spread-over up to 12 hours a day may be put into operation for all grades (except enginemen, firemen, trainmen and signalmen), subject to review by the Central Wages Board, or, on appeal, by the National Wages Board, for any station where it is contended that such a spread-over is unreasonable.

WAGES.—All earnings shall be subject to a reduction of 2½ per cent, with a further reduction of 2½ per cent for all earnings in excess of 40 shillings ($9.72) a week, provided that for male adults whose base rates are under 41 shillings a week the reductions shall not operate so as to reduce their earnings below their base rates, and provided that in no case shall any reduction exceed the sum of 6 shillings a week.

SALARIES.—With regard to clerical, supervisory, and other salaried staff, and staff paid on a salary equivalent basis, no change in conditions

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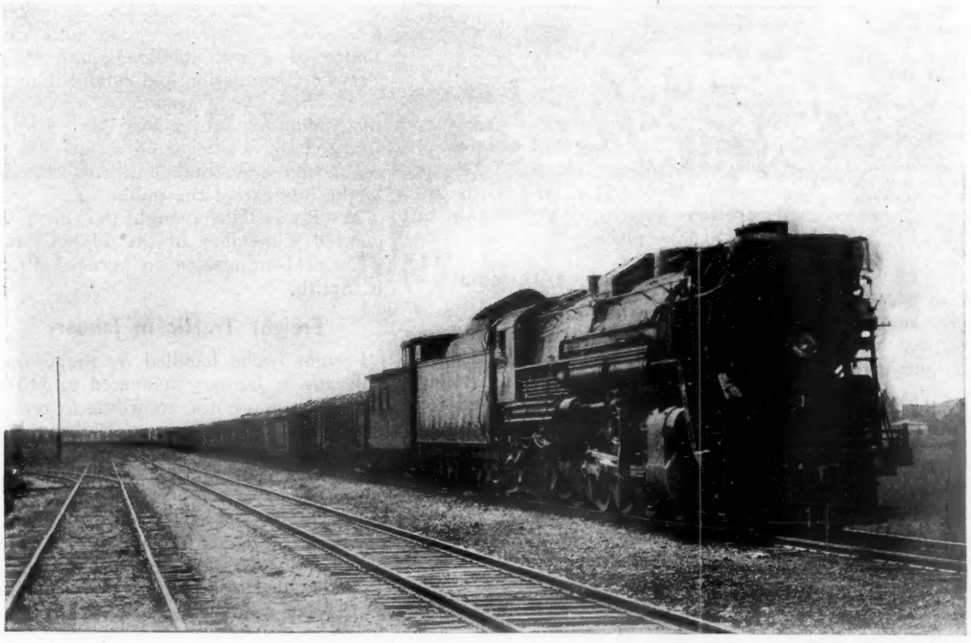
SUPER-POWER



Steam Locomotives

SUPER-POWER Steam Locomotives haul heavier trains faster; shorten the railroad and increase its capacity; reduce the number of locomotives necessary for a given operation; reduce train movement costs; reduce maintenance costs; and save fuel.

346 LIMA Super-Power Steam Locomotives have been purchased as the result of demonstrated reduction in operating costs.

LIMA LOCOMOTIVE WORKS
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or classes is recommended; but all earnings shall be subject to a reduction of 2½ per cent, with a further reduction of 2½ per cent on all earnings in excess of £100 ($486) a year, provided that in no case shall any reduction exceed the sum of £15 per year.

The Board finds against the other claims of the companies.

N. U. R. CLAIMS.—The Board finds against the claims of the N. U. R. (National Union of Railwaymen), except that it recommends to the companies that for crossing-keepers where it can be shown that the work has materially increased owing to motor traffic there shall be some additional weekly payment or arrangements made for relief of duty.

RAILWAY CLERK'S ASSOCIATION CLAIMS.—The Board finds in favor of the claim of the Railway Clerk's Association for payment for higher class temporary duty; and for payment for Sunday duty proposes that all time worked between Saturday midnight and Sunday midnight shall be paid for at Sunday rates.

DURATION OF NEW SCALE.—These decisions are to be operative from the beginning of the first full pay following March 28, 1931, to the first full pay following March 26, 1932, and shall continue until altered by agreement between the parties, or a decision of the Central Wages Board, or, on appeal, of the National Board.

As the Board itself states in its report, "The representatives of the several interests are unable to agree that the terms set out represent an adequate recognition of the respective cases," so that the decision will not be wholly satisfactory either to the companies or to the employees. As mentioned above, the railways had hoped for a larger total reduction, to be secured by an immediate cut of six shillings per week for all employees, with a minimum weekly wage of 38 shillings, and with abolition of the guaranteed week and payment only for actual time worked, including nights and Sundays; as well as by a reduction of from £10 to £15 a year for salaried employees. The men had not only opposed the companies' claims, but had asked for a minimum adult wage of £3 ($14.58) a week, with extra pay for Sunday duty.

However, a general disposition—at least on the part of railway labor leaders—to accept the findings of the Board, especially in view of prevailing economic conditions, is evident in the statement of C. T. Cramp, industrial general secretary of the N. U. R., that the findings represented the only line of agreement which could be reached, and had been accepted by the unions as the only alternative to what might have been a serious and disastrous dispute. "The decision," Mr. Cramp said, "represents a sincere desire to maintain peace within the industry, even though it involves a temporary loss of earnings in the case of some grades."

The wage controversy settled by the present decision dates from last November, which marked the end of a six months' "truce," during which time no proposals for alteration of wages or working conditions were to be advanced by either the companies or the men, following the restoration in May, 1930, of the 2½ per cent wage reduction accepted voluntarily by all employees some 20 months earlier.

P. R. R. Dividends

Cash dividends paid by the Pennsylvania Railroad amount to nearly one billion dollars, according to figures just compiled for 1930. Including the dividend just paid on February 28, 1931, out of 1930 earnings, Pennsylvania stockholders have received a total of $995,084,433 since 1856.

With the distribution of the May, 1931, dividend, the total payments to stockholders will pass the billion dollar mark, the largest dividend disbursement of any railroad in the world. Pennsylvania shareholders have received a return upon their investment every year since the railroad was incorporated in 1846, an unbroken dividend record of 84 years. This record for continuous dividend disbursements is unmatched by any American railroad.

Great Lakes Advisory Board

The Great Lakes Regional Advisory Board will hold its regular meeting at the Cleveland Hotel, Cleveland, Ohio, on Wednesday, March 25. This is the annual meeting, at which the election of officers will take place.

New Buffalo Produce Terminal

A combined produce terminal and farmers' market, sponsored by the Erie and the New York, Chicago & St. Louis, and located at Clinton street and Bailey avenue, Buffalo, N. Y., was opened for occupancy on March 16. The terminal, which was dedicated by a public inspection and buffet luncheon, covers an area of some 60 acres.

Full Crew Law Assailed in Supreme Court

The validity of the Arkansas full crew law was the subject of argument in the Supreme Court of the United States on March 10 in a suit brought by the Missouri Pacific against the attorney general of the state. The railroad was represented by E. J. White, vice-president and general solicitor of the Missouri Pacific, while the defense was represented by Donald R. Richberg.

Railway Employment Reduced in January

A further reduction of 22,000 in the number of railway employees in the service of Class I railroads between December 15 and January 15 was reported by the Interstate Commerce Commission in its preliminary statement of employment statistics for January. The number as of January 15 was 1,334,053, a decrease of 14.54 per cent as compared with the number in January, 1930, and a reduction of 16.35 per cent as compared with January, 1929. On December 15, the number was 1,356,558.

Mileage Rate Base Rejected

The Illinois Commerce Commission has refused to permit the railroads operating in that state to establish intrastate rates for iron and steel articles on the mileage basis established by the Interstate Commerce Commission for interstate shipments. The Illinois commission explained in its decision that while the Interstate Commerce Commission has full authority over interstate rates and while it is desirable that interstate and intrastate rates harmonize, nevertheless the Illinois commission has full power and a duty to regulate intrastate rates under the provision of the Illinois Commerce Act in accordance with the evidence presented to it; and it is held that the proposed rate changes on iron and steel have not been justified.

Commission Changes in Oregon and Idaho

C. M. Thomas has been appointed commissioner of public utilities of Oregon, with headquarters at Salem, Ore., following the passage by the state legislature of a bill abolishing the Public Service Commission and establishing the new office. In a statement made after his induction into office Mr. Thomas said that he would bring about effective regulation and control of the railroads in the interest of the public.

M. Reese Hattabaugh has been appointed a member of the Idaho Public Utilities Commission to succeed Frank E. Smith.

Freight Traffic in January

Freight traffic handled by the Class I railroads in January amounted to 30,313,736,000 net ton-miles, according to reports compiled by the Bureau of Railway Economics. Compared with January, 1930, this was a reduction of 6,404,026,000 net ton-miles, or 17.4 per cent, and it was a reduction of 8,895,900,000 net ton-miles, or 22.7 per cent, under January, 1929. In the Eastern district, the volume of freight traffic handled in January was a reduction of 18.3 per cent compared with the same month in 1930, while the Southern district reported a decrease of 19.4 per cent. The Western district reported a reduction of 15.4 per cent.

Fast Freight From Central Region to the South

The New York Central and the Virginian, announcing the completion of the bridge over the Kanawha River at Deepwater, W. Va., connecting the tracks of the two roads, publish their intention to establish at once first-class freight service from Toledo and Columbus, Ohio, and points from which freight moves through those cities, to all points in the southeast; and to afford the best modern facilities for the movement of New River and Pocahontas "smokeless" coals northbound. The port facilities of the Virginian at Norfolk are adequate for all classes of traffic.

Scrap Dealers Complain

Approximately 36,000,000 tons of scrap iron and steel, yielding $26,000,000 of revenue, were shipped over the railroads by scrap dealers in 1929, according to a statement made before the annual meeting of the Institute of Scrap Iron and Steel, at Cleveland, Ohio, last week. These and other figures will be called to the attention of the railways by the institute for the purpose of discouraging railroads from selling their scrap metals direct to blast furnaces and rolling mills. The development of direct selling practices by the railroads, which originate more scrap iron and steel than any other industry, would result in the destruction of the present scrap assembling structure of the institute and, says B. M.

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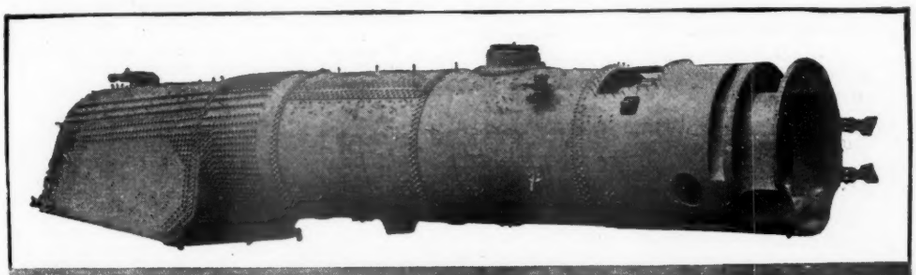

BOILER POWER

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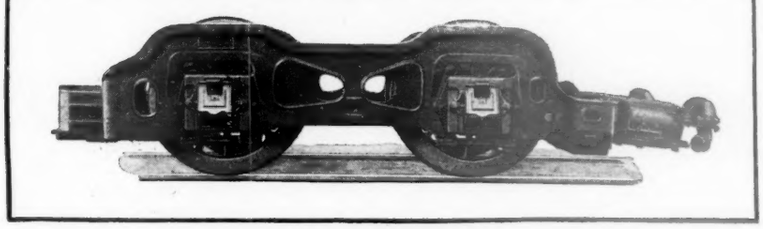
BOOSTER POWER



makes

SUPER-POWER

"It is now possible to produce a 4-6-4 type locomotive, which compared with a Pacific type engine built 18 or 20 years ago, producing 65 per cent more tractive power at 70 miles per hour, although the starting tractive effort is only 7 per cent greater. It is logical that such an engine requires a Booster to help it up to the speed at which this increased horsepower becomes available."

—C. S. Jackson, General Superintendent of Motive Power, Union Pacific System

A FEW years ago, The Locomotive Booster developed from an auxiliary to an essential part of every locomotive truly designed to do its work most economically.

- Only two methods exist for obtaining the extra tractive effort needed to set a train in motion.
- If an extra pair of drivers is added for this purpose, locomotive cost, maintenance and operation expense is needlessly increased.
- When The Locomotive Booster is used, it becomes inoperative as soon as it has done its job of bringing the train to road speed.
- Booster tractive effort involves a maintenance cost of half a cent, while tractive effort secured by adding a pair of drivers increases maintenance by 5 to 10 cents per mile.

FRANKLIN RAILWAY SUPPLY COMPANY, Inc.

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

Schwartz, director of the institute, reduce the revenue railroads receive from transportation of scrap.

Indiana Limits Highway Loads

Governor Harry G. Leslie of Indiana has signed the state Senate bill which limits the load, length, height and width of all trucks and motor coaches operated on highways in Indiana. The law, which becomes operative on January 1, 1932, limits the height to 12 ft., the length of a single vehicle to 33 ft., the length of a combination vehicle to 40 ft., the width to 8 ft., and the maximum axle weight of any motor vehicle on pneumatic tires to not more than 16,000 lb. and to 80 per cent of this weight when on solid tires.

Move to Appoint Two More to C. N. R. Board

Notice of motion is given in the House of Commons at Ottawa by Hon. Robert J. Manion, Minister for Railways, of a bill to amend the Canadian National Railways Act. The purpose of the proposed amendment is to enable the Government to appoint two more members to the board of directors of the railway, those two additional directors to represent the provinces of Alberta and Saskatchewan. The Alberta appointee is expected to be James Ramsay, a well known business man of Edmonton, while the Saskatchewan man is expected to be a farmer not yet designated.

Ohio Full Crew Law

The Ohio Supreme Court on March 11 handed down a decision sustaining the action of the Ohio Commission of Public Utilities in refusing to issue an order to compel the Wheeling & Lake Erie to comply with the provisions of the state full crew law in the operation of gasoline-driven motor trains. The Brotherhood of Locomotive Firemen and Enginemen had asked the commission to require the railroad to employ a crew of four men on a rail motor car train operated between Pittsburgh, Pa., and Toledo, Ohio. The commission refused the order and an appeal was taken by the brotherhood to the state supreme court.

Excursion Rates from Chicago to the South

The Chicago & Eastern Illinois and the Illinois Central will establish a round-trip passenger fare of $39 from Chicago to New Orleans, La., for the period beginning May 15 and ending September 30. The one-way fair is $23.76.

Railroads running from Chicago to Florida will operate excursions to Florida on stated dates, with a round-trip fare equal to one and one-tenth times the one-way fare and with a 30-day limit. The dates on which these excursions will be run are April 30, May 2, May 30, June 27, July 25, August 15 and September 5.

Another type of excursion will be offered on April 10 and 11, to passengers traveling from Chicago to points in Georgia, Alabama, Mississippi, Tennessee and Kentucky. On these days the round-trip coach rate, with a four-day limit, will be substantially less than the one-way coach rate, while the regular rate, with a 15-day limit, will be approximately equal to the one-way fare plus $1. For example, the round-trip coach rate from Chicago to Nashville, Tenn., will be $10, in contrast to the normal one-way fare of $16.32, while the regular round-trip fare will be $18.

Another group of excursions will be placed in effect between Chicago and Hot Springs, Ark., by railroads operating between these two points on March 13, 14, 27 and 28, and April 10, 11, 24 and 25. The round-trip fare, with a return limit of 10 days, will be $30, or about one and one-third times the one-way fare.

Special Train Service to Petrified Forest

The Atchison, Topeka & Santa Fe, from March 17 to April 30, will run tri-weekly sleeping cars for passengers who are traveling from Phoenix, Ariz., to Chicago and who wish to visit the petrified forest near Winslow. Cars will start from Phoenix on Tuesdays, Thursdays and Saturdays; train No. 42 to Ashfork and the Grand Canyon Limited from Ashfork to Winslow. At Winslow passengers will be allowed five days to visit the petrified forest. From Winslow to Chicago the cars will be carried on the Chief. During January and February a similar service was offered passengers westbound.

Bonus for Pullman Conductors and Porters

The Pullman Company is to give its conductors and porters percentage bonuses on the sales of upper berths and whole sections. In addition, remuneration will be given them for persuading passengers to utilize better accommodations than those reserved. The plan, which became effective on March 1, is applicable only to passengers who have purchased reservations before boarding the train. It provides a commission of 10 per cent of the additional revenue from the sale of the entire section, 4 per cent for the sale of an upper berth and 2 per cent for the transfer of passengers to accommodations of higher value.

A. R. A.-N. E. L. A. Committee on Inductive Co-ordination

A joint general committee, appointed by the American Railway Association and the National Electric Light Association to study the subject of inductive co-ordination, has recently issued, for the guidance of member companies of these associations, a statement which reads as follows:

The committee is undertaking to establish a basis for the handling, insofar as inductive co-ordination is concerned, of relations between member companies of the American Railway Association and the National Electric Light Association.

To a subcommittee of engineers has been assigned the task of preparing:

1. A statement of the nature and extent of inductive co-ordination problems confronting the two industries.
2. Principles and practices which should govern the handling of these mutual relations.

The committee believes that with the co-operative spirit which exists between the member companies of both associations, mutually satisfactory results will follow these deliberations. It wishes to emphasize that the most important factor in the solution of all inductive co-ordination questions is the establishment of close co-operative relations between the individual power and railway companies. It is of primary importance that these companies take up with each other, in advance, construction plans or changes in method of operation which might involve inductive co-ordination problems. Construction programs should be co-ordinated both with respect to immediate projects and with respect to general arrangements for future development, since any adjustments can best be made before plans have reached an advanced stage.

The report is signed by Owen D. Young of the General Electric Company, chairman of the committee; Paul S. Clapp, N. E. L. A., committee secretary; and members of the committee, including R. H. Aishton, L. A. Downs, A. C. Needles and J. J. Pelley.

To Spend Eight Millions This Year on Montreal Terminal

Up to the end of the calendar year 1930 the total money expended on the Montreal Terminal of the Canadian National was $8,614,497.31, according to a statement tabled in the House of Commons at Ottawa by Hon. Dr. R. J. Manion, Minister of Railways and Canals. Of this total $1,795,864.4 was spent in 1929 and the remainder in 1930. The estimated expenditure in the present calendar year is $8,000,000, divided as follows: Land, property and damages, $1,820,500; main terminal area, $1,853,500; grade separations, including overhead bridges, subways and elevated structures, $1,881,000; other structures, $370,000; new lines, $898,000; other construction, $327,000; general expense, engineering, surveys, etc., $850,000. The report tabled by the Minister is signed by C. B. Brown, chief engineer, Montreal Terminal Development.

New Canadian Commission Head

Judge Charles P. Fullerton, of Winnipeg, Manitoba, will be the new chairman of the Dominion Railway Commission to succeed Hon. Harrison A. McKeown who recently resigned. It is known he was approached by Premier R. B. Bennett to accept the position and he has expressed his readiness to go to Ottawa and take charge of the Railway Board. Official announcement of his appointment awaits his resignation of his judicial position in Manitoba. Judge Fullerton was appointed to the Court of Appeal of Manitoba in 1917.

Born in Amherst, N. S., July 18, 1879, he entered Dalhousie University in 1885 at the age of fifteen. After three years of college he entered the lumber business. Later he returned to Dalhousie to study law, graduating in 1895. In 1900 he moved to Sydney, Cape Breton Island, and practised law there for six years. At the age of 33, he was elected mayor of that city in 1903.

Mr. Fullerton went to Winnipeg in 1906 and joined the firm of Aikins, Robson, Loftus & Coyne as a junior and within a few years became second in command of

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THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

ONLY AMERICAN ARCH COMPANY has this background

● CONSULTANTS often demand many dollars per minute for their advice and clients gladly pay the fee. Why? Because their background of experience guarantees the soundness of their advice.

● American Arch Company service is unique because American Arch Company alone has the long years of service to the railroads behind it.

● For years past, practically every brick Arch installed in locomotives has been designed in cooperation with American Arch Company's combustion experts.

● This rich experience in locomotive combustion is at the service of American railroads, to apply the Arch to new locomotive designs and to study special combustion conditions, thus insuring proper functioning of the Arch.

● This engineering service is only one of the many advantages to be had when American Arch Company supplies the Arch Brick.

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the firm of which Sir James Aikins was senior memb

"Legislative Rate Making"

In an account published on page 557 of the *Railway Age* for March 14 of the adoption, by the Shippers' Conference of Greater New York, of a committee report on the declaration of policy issued last November by the Association of Railroad Executives, there appeared the following statement: "The committee also opposed any respite of legislative efforts that would adversely affect rates or increase expenses, 'believing that the adjustment of rate problems is the duty of administrative commissions created for that purpose.'" The recommendation of the railway executives referred to read: "A respite from legislative efforts of either the national or the State legislatures that would adversely affect rates or increase the expenses of the carriers;" while the report of the committee on this point said: *"We are firmly opposed to political rate making of any kind,* believing that the adjustment and settlement of rate problems are properly the duty of the administrative commissions which have been created for that purpose."

Missouri Pacific Cuts Stationery Costs

The Missouri Pacific reduced its stationery cost from $729,962 in 1929 to $579,308 in 1930. In 1926 the total was $793,031; in 1927, $721,201, and in 1928, $707,500.

The depression in business contributed towards this result, but the ratio of stationery and printing to gross revenue outran, slightly, the reduction in gross revenue.

Among the economies were the use of the proper size envelopes and paper, the employment of "repeat address" envelopes and the use of mail pouches in which mail is placed without envelopes. Old expensive forms were used up and supplies of less expensive ones substituted. Savings in United States postage were accomplished by placing all letters to the same address on the same day in one envelope instead of in separate envelopes.

Trans-Missouri-Kansas Shippers' Board

Carloadings in the states of Missouri, Kansas, Oklahoma, Arkansas, and the southwestern portion of Illinois during the months of April, May and June, 1931, will average approximately 8.5 per cent less than the shipments made during the corresponding months of 1930, according to predictions submitted by representatives of the basic industries at the regular meeting of the Trans-Missouri-Kansas Shippers' Board held at Kansas City, Mo., on March 18.

Products of agriculture are expected to show a decrease of 6.3 per cent and dairy products an increase of 4.8 per cent. Products of mines are expected to show a decrease of 5 per cent, compared with a year ago. Building materials are expected to show a decrease of 8.5 per cent. The automotive industry expects an increased volume as compared with the current quarter, but approximately 45.7 per cent less than in the second quarter of 1930. The packing industry anticipates a decrease of 12.4 per cent.

The subject of "Railroads Versus Other Transportation Agencies," was discussed by P. J. Neff, vice-president and general manager of the Missouri Pacific Transportation Company, and by John H. Blood of the Southern Kansas Stage Lines. J. H. Tedrow, transportation commissioner of the Kansas City Chamber of Commerce, discussed regulation of motor transportation.

Members and visitors of the board were guests at a luncheon served by the Traffic Club of Kansas City at the Baltimore Hotel. John H. Millar, of "Business Week," was the principal speaker, discussing "General Business Conditions and the Probable Outlook."

Club Meetings

The New England Railroad Club will hold its next meeting at the Copley Plaza Hotel, Boston, on Tuesday evening, April 14. G. J. Ray, chief engineer of the Delaware, Lackawanna & Western, will speak on maintenance problems and the application of machinery to track work.

The Indianapolis Car Inspection Association will hold its next meeting on Monday evening, April 6, at 7 o'clock, at the Severin Hotel, Indianapolis, Ind. J. W. Murphy (C., C., C. & St. L.) will speak on inspection of cars in interchange.

The St. Louis Railway Club will hold its next meeting on Friday evening,

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Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

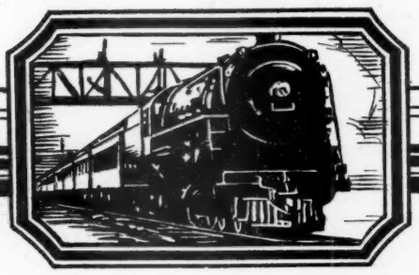
Compiled from the Monthly Reports of Revenues and Expenses for 171 Steam Railways, Including 16 Switching and Terminal Companies.

FOR THE MONTH OF JANUARY, 1931 AND 1930

Item	United States		Eastern District		Southern District		Western District	
	1931	1930	1931	1930	1931	1930	1931	1930
Average number of miles operated	242,738.48	242,796.76	60,223.83	60,322.96	46,106.22	46,139.64	136,408.43	136,334.16
Revenues:								
Freight	$277,013,954	$338,178,648	$118,899,371	$147,462,643	$54,649,579	$67,229,505	$103,465,004	$123,486,500
Passenger	53,348,656	70,481,615	29,910,902	37,544,429	7,614,257	10,981,780	15,823,497	21,955,406
Mail	9,006,777	9,450,850	3,428,746	3,624,146	1,547,168	1,606,171	4,030,863	4,220,533
Express	5,983,893	8,292,493	2,260,745	3,821,382	1,019,197	1,333,779	2,703,951	3,137,332
All other transportation	11,839,623	14,547,687	6,836,677	8,420,077	889,477	1,133,534	4,133,469	4,994,076
Incidental	7,978,681	9,677,634	4,335,220	5,059,128	1,181,979	1,457,235	2,461,482	3,161,271
Joint facility—Cr.	989,230	1,122,720	318,772	362,598	156,173	182,935	514,285	577,187
Joint facility—Dr.	281,060	292,862	75,572	78,075	25,589	34,918	179,899	179,869
Railway operating revenues	365,899,754	451,458,785	165,914,861	206,216,328	67,032,241	83,890,021	132,952,652	161,352,436
Expenses:								
Maintenance of way and structures	43,738,880	54,916,805	19,314,890	23,930,280	9,142,007	11,456,421	15,281,983	19,530,104
Maintenance of equipment	77,227,044	95,880,000	35,950,846	44,665,297	13,895,539	17,261,113	27,380,659	33,953,590
Traffic	10,158,896	11,327,008	3,795,484	4,327,443	2,056,268	2,210,342	4,307,144	4,789,223
Transportation	143,416,590	173,572,495	67,569,827	80,890,076	23,911,856	28,192,235	51,934,907	64,490,184
Miscellaneous operations	3,966,144	4,919,405	1,930,179	2,359,698	537,032	695,499	1,498,933	1,864,208
General	16,078,453	16,951,582	6,992,343	7,480,027	2,818,967	2,848,853	6,267,143	6,622,702
Transportation for investment—Cr.	504,059	903,263	81,452	135,896	47,196	89,503	375,411	677,864
Railway operating expenses	294,081,948	356,664,032	135,472,117	163,516,925	52,314,473	62,574,960	106,295,358	130,572,147
Net revenue from railway operations	71,817,806	94,794,753	30,442,744	42,699,403	14,717,768	21,315,061	26,657,294	30,780,289
Railway tax accruals	27,289,096	29,426,790	10,725,674	11,606,488	5,435,844	6,012,311	11,127,578	11,807,991
Uncollectible ry. revenues	68,873	91,694	29,337	47,557	10,576	14,278	28,960	29,859
Railway operating income	44,459,837	65,276,269	19,687,733	31,045,358	9,271,348	15,288,472	15,500,756	18,942,439
Equipment rents—Dr. balance	8,100,208	7,469,714	4,271,048	4,179,953	464,266	d 104,035	3,364,894	3,393,796
Joint facility rent—Dr. balance	2,510,515	2,033,404	1,439,282	966,435	243,492	209,187	827,741	857,782
Net railway operating income	33,849,114	55,773,151	13,977,403	25,898,970	8,563,590	15,183,320	11,308,121	14,690,861
Ratio of expenses to revenues (per cent)	80.37	79.00	81.65	79.29	78.04	74.59	79.95	80.92

d Deficit or other reverse item.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.



Alco Alco

LOCOMOTIVE MAINTENANCE

AS specialists in locomotive building it necessarily follows that we must be equipped with the organization, shops, and all the special machinery required for producing locomotive parts in quantity.

It also follows that we as builders, when producing these parts, have always in mind the continued success of the locomotive as a whole, thereby insuring a uniformly flawless product.

After a thorough investigation had convinced us that with these facilities we could furnish locomotive parts of quality at a lower figure than their present costs in many railroad shops, we enlarged our facilities so that this production of parts would not be adversely influenced by the receipt of orders for complete locomotives.

With these facts all in mind why not make a careful study of your maintenance requirements with a view of finding out just what locomotive replace parts can be made better and cheaper by us.

In availing yourself of this service you are merely taking advantage of an economy and a convenience, the adoption of which will only serve to emphasize its value.

American Locomotive Company
30 Church Street New York N.Y.

Alco Alco

April 10, at Hotel Statler, St. Louis. W. S. Spieth, of the American Steel Foundries, will present a paper on roller bearings. This will be a joint meeting with the Car Foremen's Association of St. Louis, and will also include the annual election of officers.

The Railway Club of Pittsburgh (Pa.) will hold its next meeting on Thursday evening, March 26, at the Fort Pitt Hotel. M. J. Gormley, (A. R. A.) will speak on present day transportation.

The Canadian Railway Club will hold its next meeting at the Windsor Hotel, Montreal, Quebec, on Monday evening, April 13. The speaker will be Hon. Gideon Robertson, Minister of Labor. There will be a dinner at 6:30 p.m. and motion pictures at 7:30.

Westinghouse Tests Stream-Lined Car Models

In a series of tests with scale models of present type and stream-lined cars in winds of varying velocities up to 80 m.p.h., Dr. Oscar G. Tietjens of the Research Laboratory, Westinghouse Electric & Manufacturing Company, has developed a number of conclusions which are believed to be correct within a close percentage when applied to full size equipment.

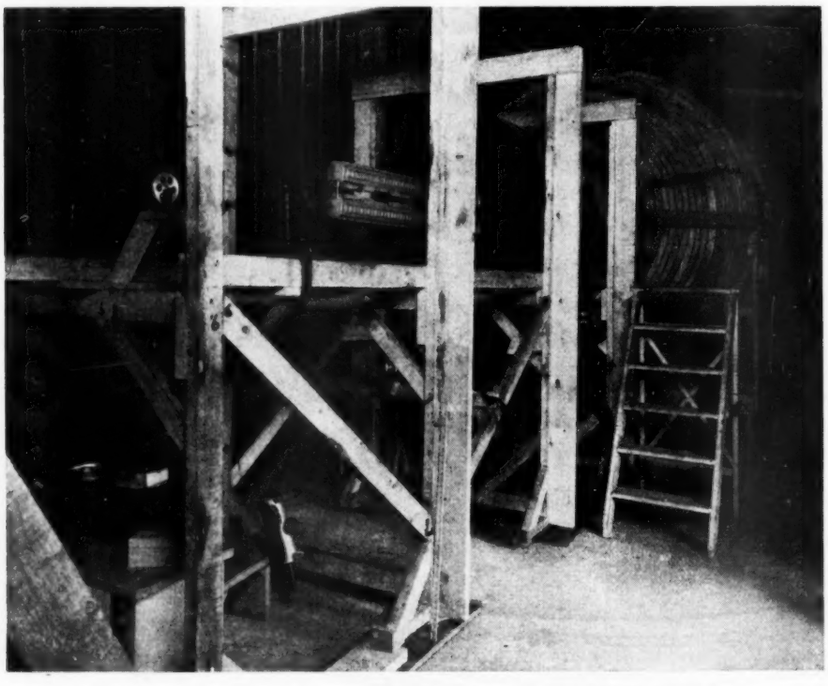
In the case of a heavy locomotive and two heavy coaches, steam-line design saves 13 per cent of the required total horsepower for a speed of 35 m.p.h. and 32 per cent of the total horsepower required for a speed of 75 m.p.h., in present equipment of similar weight.

It requires 286 hp. to drive the present type of light interurban electric car at 80 m.p.h. Tests, made in the Westinghouse wind tunnel, indicated that the same type of car of stream-line design

Dr. Oscar G. Tietjens with Stream-Line Model of a Railway Motor Car

can be driven 80 m.p.h. with only 140 hp., thus saving 146 hp. At 35 m.p.h., stream-lining will save 30 per cent of the horsepower required for a similar car of the present shape and at a speed of 75 to 80 m.p.h., such a car will travel with one-half the horsepower required to send the present car at that speed.

According to Dr. Tietjens' tests, streamlining is not so important for the slower speeds or for heavy equipment, although it is of benefit at high speeds and particularly for light equipment. As the weight can be decreased, journal friction is reduced, which explains the advantage that goes to lighter rolling stock. From these results, Dr. Tietjens concludes that streamlining will be worth while for medium and high-speed light interurban cars and for heavy high-speed trains.



Wind Tunnel in the Research Laboratories of the Westinghouse Electric & Manufacturing Company

Dr. Tietjens states that for an ordinary locomotive the potential benefit is 16 times greater than the same coefficient for a stream-lined zeppelin of the same cross-sectional area.

From this entire program of activity, it is expected to work out new styles in high-speed cars and trains that will be revolutionary in character and appearance as well as notable for their efficiency and economy of operation. It is believed that Dr. Tietjens' tests in the Westinghouse Research Laboratories open up a new field of possibilities in operating trains and cars faster than at present without increased energy or fuel requirements.

New Industries on Missouri Pacific and Frisco

During 1930 a total of 824 new industries, with investments aggregating more than $20,000,000, were located along the Missouri Pacific; 492 on the Missouri Pacific proper, 251 on the Gulf Coast Lines, and the remaining 81 on the International-Great Northern.

On the St. Louis-San Francisco a total of 325 new industries were established in 1930. These included 7 compresses and gins; 4 canneries; 2 grain elevators; 61 material yards, coal yards and mines; 49 warehouses; 10 oil-well supply houses; 9 oil refineries and loading racks; 92 oil distributing plants; 4 wholesale produce houses; 7 rock crushers, and 1 creamery.

Material Handling Meeting

Material handling by tractors and lift trucks in railroad stores, shops and freight houses, as well as in industrial plants, will comprise an important part of the program and equipment on display at the Second National Industrial Congress and Equipment Exposition to be held at the Auditorium in Cleveland, Ohio, April 13 to 17, inclusive. This congress, which will be held under the auspices of the Society of Industrial Engineers, the Elimination of Waste Committee, the Cleveland Engineering Society, the Cleveland Electrical Maintenance Engineers' Association, the American Society of Mechanical Engineers, and the American Management Association, will also consider the subject of scrap handling and waste elimination.

The trucking and shipping session of the congress will be held on the evening of April 15, when the following papers will be presented: "Skids and Skid Shipments," by R. L. Lockwood; "Use in Marine Terminals," by H. E. Stocker; "Use in Railroad Terminals and Stores," by J. V. Miller, assistant general storekeeper, Chicago, Milwaukee, St. Paul & Pacific; "Handling on Skids," by C. C. Stuber, manager of industrial transportation, Goodyear Tire & Rubber Co., and "The Use of Gas Trucks and Tractors in Material Handling," by George E. Hagemann. The program also calls for several inspection trips to large industrial plants in the vicinity of Cleveland.

Continued on Next Left Hand Page

HERE'S THE ANSWER..

The increased weight and speed of modern freight transportation throw a tremendous burden on equipment. Any railroad executive, in doubt as to what wheels have the stamina to endure the stress of this heavy-duty service, will find the answer in Carnegie Light Weight Wrought Steel Wheels for freight cars of 70-ton capacity or less. They are safe . . . as only wrought steel wheels can be. They are durable . . . rendering long and continuous service. They are economical . . . insuring a lower cost-per-mile than any other type of freight car wheel.

Carnegie Light Weight Wrought Steel Wheels have answered the wheel question to the satisfaction of many prominent railroad officials. More than half a million wheels of this type are now in service. They offer a satisfactory solution to your wheel question.

CARNEGIE WROUGHT STEEL WHEELS

Product of Carnegie Steel Company, Pittsburgh, Pa., Subsidiary of United States Steel Corporation

100

Foreign

New Zealand Government Railways Deficit Increased in 1929-30

The New Zealand Government Railways for the year ending March 31, 1930 reported a deficit after interest charges equivalent to $5,898,880 as compared with a deficit of $2,107,458 for the previous year ending March 31, 1929. While in years immediately prior to 1929-30 the growth of the deficit was attributable mainly to increases each year in interest charges, it was the rise in operating expenses with a resulting fall in net earnings which accounted for the 1929-30 net loss.

The mounting deficit on these government-owned lines and the influence of interest charges thereon is shown in the following tabulation:

	Net Earnings	Interest Charges	Deficit
1925-26	$9,702,667	$9,317,825	$384,842*
1926-27	9,466,179	9,951,519	485,339
1927-28	8,957,951	10,377,322	1,419,371
1928-29	9,246,143	11,353,601	2,107,458
1929-30	4,485,538	10,384,418	5,898,880

* Surplus after interest charges.

The reversal in 1929-30 of the tendency whereby mounting interest charges accounted for the increasing deficit is attributable somewhat to changes in the methods of handling the accounts introduced with the passage of the Finance Act, 1929. Under the altered accounting method the interest charges were increased from 4⅛ to 4¼ per cent but £8,100,000 of capital investment was exempt from interest; this provision accounts largely for the reduction in 1929-30 interest charges as compared with 1928-29. Another provision eliminates credits which had been allowed on losses incurred from the operation of certain branch lines and lines in isolated sections; this feature tends to augment the operating expenses.

Gross revenues during the past year amounted to the equivalent of $40,323,181, operating expenses were $35,837,643 and net revenues $4,485,538 as compared with 1928-29 gross revenues of $42,602,638, operating expenses of $33,356,495 and net revenues of $9,246,143.

From railway operations alone the gross revenues were $36,398,346; operating expenses were $33,349,887 and net revenues $3,048,459 as against respective 1928-29 figures of $36,646,087, $31,044,200 and $5,601,887. The railway operating ratio has increased from 81.23 in 1925-26 to 91.62 in 1929-30.

Passenger train revenue in 1929-30 accounted for approximately 33 per cent of the total. As compared with the previous year there was a decrease in revenue from "ordinary passengers" but increases were reported in revenue from season tickets and from parcels, luggage and mail. Revenue from freight traffic increased slightly. A loss of £11,416 was sustained from the operation of highway services; this is an increase of £2,088 over the 1928-29 loss of £9,328 from these operations.

At the close of the fiscal period there were 3,287 miles of line open for traffic representing a total capital cost of $281,425,958 or the equivalent of $85,619 per mile. This average cost per mile has increased from $73,888 in 1925-26.

In concluding his report the general manager stresses "the inapplicability of the Revenue and Expenditure Account as a test of managerial efficiency."

"It was never more necessary to keep this in mind than at present," he continues, "and surely no better or clearer evidence of the truth of this proposition could be found than in this year's account inasmuch as it will be seen that by various strokes of the 'policy' pen the account has been loaded to an extent of approximately half a million pounds. If, in addition, consideration is given to other factors affecting this account over which management, as such, could have little or no control, it will be seen at once that to accept that account at its face value as having any real significance in relation to the management would be as misleading as it would be unjust. The account, of course, has significance—a significance in relation to the system under which we work. Whether that system should be changed is not within the province of management as such to decide. All I wish to submit is that during the year the best has been done so far as the management is concerned within the limits of the system."

Australian Government Lines Show Steady Increase in Rates

That freight and passenger rates on the government-owned and operated railways of the various Australian provinces have shown steady and sizeable increases in the past 17 years, amounting in one case to 129 per cent, is brought out in a study of these rates recently submitted to the Department of Commerce by Consul-general Tredwell, Sydney, Australia. Details of the various increases, with particular attention to those affecting agricultural products, are as follows:

The increases in New South Wales since 1914 have varied according to the different commodities and rail distances, the range of increase for items directly affecting the pastoral industry being from 46 per cent to 129 per cent. The freight rate for live stock has been increased by about 72 per cent, for greasy wool about 60 per cent and for fodder about 100 per cent. Second class passenger fares increased over the same period approximately 65 per cent. In Tasmania the increase in freight rates since 1914 has ranged from 14 per cent to 64 per cent, that for the carriage of live stock being 50 per cent. Second class passenger fares increased by 40 per cent. In Western Australia the increase in freight rates ranged from 9.7 per cent to 58.83 per cent, the increase in the case of live stock being 53.49 per cent. There was no increase in second class passenger fares. In Victoria, freight rates increased from 49.49 per cent to 64.44 per cent, the increase in the case of live stock being 58 per cent. The range of increase in the passenger fares was from 9 per cent to 43 per cent. In South Australia the increase in freight rates ranged from 49 per cent to 88 per cent, the increase for live stock being 78 per cent. Second class passenger fares increased by 27 per cent.

Equipment and Supplies

LOCOMOTIVES

THE UNION PACIFIC, in its budget for 1931, has provided for the purchase of 20 locomotive tenders of 18,000 gal. capacity and two gas-electric rail motor cars.

THE PENNSYLVANIA is inquiring for about 150 electric locomotives. This is part of its plan to purchase 240 electric locomotives and to electrify 80 passenger cars in connection with general improvements, as announced in the *Railway Age* of February 21, page 422.

FREIGHT CARS

THE FISHER LUMBER CORPORATION, Memphis, Tenn., has ordered 20 skeleton logging cars, of 30 tons' capacity, from the American Car & Foundry Company.

THE NORTHERN PACIFIC has ordered 500 underframes for stock cars from the Standard Steel Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of March 7.

THE UNION RAILROAD has ordered 10 air dump cars from the Differential Steel Car Company and 10 from the Magor Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of December 27.

IRON & STEEL

THE MISSOURI-KANSAS-TEXAS has ordered 4,000 tons of structural steel for its bridge at Boonville, Mo., from the American Bridge Company.

SIGNALING

THE BOSTON & MAINE has ordered from the Union Switch & Signal Company material for a complete new electro-pneumatic interlocking at the North Station, Boston, to take the place of the two interlockings now operated from Towers A and B. In connection with the new station, there will be a complete re-arrangement of tracks. The interlocking territory includes the four new double-track bascule bridges over the Charles river.

The machine will be Model 14, with 211 levers, operating 324 functions. The order includes 1,200 d.c. relays, 200 rectifiers, 165 searchlight signals and 160 electro-pneumatic switch and lock movements.

There will be a complete dispatcher's cabinet for regulating the starting of trains from the platforms, and a spotlight track model.

MISCELLANEOUS

THE PENNSYLVANIA ENGINEERING WORKS, New Castle, Pa., is inquiring for 13 pairs of trucks of 75 tons' capacity.

Continued on Next Left Hand Page

TESTS—ENDLESSLY REPEATED

Bend a piece of steel—bend it again, and again, and again. Gradually but inevitably you approach the point where the steel, utterly fatigued, breaks apart. At Illinois Steel Company, alloy steels are subjected literally to millions of rapidly repeated stresses, that resistance to fatigue may be measured and controlled. By such methods the quality of Illinois Alloy Steels is kept uniformly to exacting laboratory standards.

Illinois Steel Company

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

208 South La Salle Street, Chicago, Ill.

ILLINOIS *alloy* STEEL

Supply Trade

John D. Tyson, formerly assistant metallurgical engineer of the **Standard Steel Works Company,** Burnham, Pa., has been appointed chief metallurgist.

George A. Long, manager of the **Industrial Brownhoist Corporation,** Cleveland, Ohio, has been transferred to Bay City, Mich., to succeed **J. Stanley See,** resigned.

The Hyatt Roller Bearing Company, Harrison, N. J., has moved the office of its western sales division from 111 West Washington street to the Carbide & Carbon building, 230 North Michigan avenue, Chicago.

James F. Drake, chairman of the board of directors of Pullman, Inc., Chicago, will retire from that position on March 31, to become president of the **Gulf Oil Corporation of Pennsylvania,** at Pittsburgh, Pa.

Allen L. Datesman, formerly representative of **Otis B. Duncan,** Chicago, has been appointed representative for the **Hopkins Company** and the **Northwestern Motor Company,** with headquarters at Cleveland, Ohio.

Reding Putman, at one time associated with the advertising and trade promotion department of the **Southern Pine Association,** has been appointed advertising manager of the **Wood Preserving Corporation,** with headquarters at Pittsburgh, Pa.

R. A. Solborg, who has been in charge of sales in Continental Europe for the **Armco International Corporation,** a subsidiary of the American Rolling Mill Company, with headquarters at Paris, France, has been elected vice-president, with the same headquarters.

The Ohmer Fare Register Company, Dayton, Ohio, has established a new sales office at 333 East Eighth street, Cincinnati, Ohio, to handle cash register and accounting machine sales in Cincinnati and vicinity. **F. H. Dickey** is in charge of the Cincinnati territory.

Richard W. Meade, formerly president of the People's Motorbus Company, St. Louis, Mo., and previous to that president of the New York Transportation and Fifth Avenue Coach Companies, has opened an office as motor transportation consultant, at 484 Lake avenue, St. Louis.

J. S. Lemley and **Frank J. Kearney,** vice-presidents of the **T-Z Railway Equipment Company,** Chicago, have been elected vice-presidents of the **Morris B. Brewster Company,** Chicago. **William Wright,** mechanical engineer of the **T-Z Railway Equipment Company,** has been appointed mechanical engineer of the **Morris B. Brewster Company.**

The Wood-Preserving Corporation, Pittsburgh, Pa., has acquired the **National Lumber and Creosoting Company,** Texarkana, Ark., with its eight treating plants. With the plants of the Ayer & Lord Tie Company and the Century Wood Preserving Company, acquired recently, this organization now operates 22 plants equipped for pressure treatment.

The American Steel & Wire Company will establish an office in Worcester, Mass., to handle the sale of the products of the three plants at Worcester and the mills at New Haven, Conn., and Trenton, N. J. **John May,** manager of sales of the electrical and wire rope department in the New York office, has been appointed assistant general manager of sales and will be in charge of the Worcester office, which will be opened on April 1.

The McClintic-Marshall Corporation, subsidiary of the Bethlehem Steel Corporation, has made the following appointments: **H. R. Walters,** assistant to president; **John N. Marshall,** assistant to vice-president in charge of operations; **Jonathan Jones,** chief engineer; **C. H. Mercer,** consulting engineer, and **C. A. Johnson,** manager of sales, all with headquarters at Bethlehem, Pa. Mr. Walters was formerly manager of the fabrication and erection department of Bethlehem Steel, Mr. Mercer was chief engineer in that department and Mr. Johnson was manager of sales of fabricated material. Mr. Marshall and Mr. Jones are continuing in the capacities which they held with the McClintic-Marshall Corporation under its previous ownership.

Ryan Car Company

The annual report of the Ryan Car Company, as of December 31, 1930, shows a loss of $31,638, as compared with a profit of $11,463 for the previous year. Gross sales amounted to $2,635,044, as compared with $1,844,628 in 1929. Assets amounted to $3,675,273, as compared with $4,027,317 in 1929. The operating statement follows:

	1930	1929
Gross sales for the year	$2,635,044	$1,844,628
Cost of manufacturing, selling and administrative expenses (excluding depreciation)	2,502,506	1,759,304
Profit before considering depreciation and amortization	$132,538	$85,324
Less: Depreciation	79,878	77,855
Amortization	30,855	.....
	$21,805	$7,469
Add net of miscellaneous debit and credit items	.....	3,994
	$21,805	$11,463
Deduct interest, bad debts, etc.	53,443	.....
Profit or loss for year	* 21,638	† $11,463

* Loss. † Profit.

The statement of President W. M. Ryan to stockholders, in part, follows:

As everyone knows, 1930 was a very trying year for nearly all lines of industry, and in view of this, your management feels that the rather small loss was not discouraging. The freight car branch of our business showed a fair profit, but this was substantially offset by the rather poor year in the road granding machinery division of our company, and also further offset by the inauguration of a more conservative policy of charges to development on the Locomotor.

In the road machinery division, the progress made in building up a better distributor organization was very promising, and had considerable to do with the showing made in that department of our business. This expenditure, we believe, will benefit our sales in 1931 and later years.

The Locomotor, first product of our new line of rail equipment employing the high pressure steam power plant, has another year of trial and development behind it. The results for the year have been eminently satisfactory. The nrst Locomotor sold to the Chicago, Milwaukee, St. Paul & Pacific has been giving splendid service and a second one is to be delivered within the month.

Colorado Fuel & Iron Company

The annual report for 1930 shows a net profit before deduction of equipment dismantled, of $298,649 as compared with $2,350,048 in 1929. According to Arthur Roeder, president, the shrinkage in net income was caused by a drastic falling off in the demand for steel products, resulting in reduced tonnages shipped and the lowest prices realized for steel products in recent years. Also, less coal was required for the market. During the year, additions to properties were made in the sum of $2,158,587. Regular dividends of $8 per share were paid on the preferred stock, three dividends of 50 cents each and one dividend of 25 cents were paid on the common stock, and bonds of the company, totaling $103,000, were purchased. These were either retired or are held in the treasury. The ratio of quick assets to current liabilities on December 31, 1930, was 4.13 to 1, as compared with 3.68 to 1 on December 31, 1929.

The consolidated income account as of December 31, 1930, as compared with 1929, follows:

	1930	1929
Total earnings, after deducting operating expenses (including ordinary repairs and maintenance and general taxes) and selling, administrative and general expenses	$3,402,848	$5,837,759
Interest, dividends and other miscellaneous income	527,111	541,115
Total Income	$3,929,959	$6,378,874
Less interest on bonds and notes	1,624,075	1,628,188
Balance	$2,305,884	$4,750,686
Provisions for depreciation of plants and exhaustion of minerals	1,970,915	2,130,779
Profit before Federal income tax	334,969	$2,619,907
Provision for Federal income taxes	36,320	269,859
Net profit for the year before deduction for equipment dismantled	$298,649	$2,350,048

Westinghouse Electric & Manufacturing Company

The annual report of the Westinghouse Electric & Manufacturing Company, which was made public on March 11, shows the following income account for the year ending December 31, 1930, as compared with the previous year:

	1930	1929
Gross earnings		
Sales billed	$180,283,579	$216,364,588
Cost of sales	171,971,118	194,371,987
Net manufacturing profit	8,312,461	21,992,601
Gross income from all sources	11,886,205	27,316,344
Net income available for dividends and other purposes	11,881,705	27,062,611

Reduction in sales and income in 1930 reflects the removal of the manufacture

Continued on Next Left Hand Page

AMERICAN STEEL SHEETS

ONLY by making sure that the sheets you purchase are AMERICAN, do you insure for your product the quality that comes from sheet metals that are correctly made in every detail, by skilled and able craftsmen. Make no mistake, you can identify TRUE QUALITY in Steel Sheets by the well known AMERICAN brand.

This Company Manufactures High Grade

AMERICAN

Black Sheets
Blue Annealed Sheets
Electrical Sheets
Automobile Sheets
Special Sheets
Stamping Sheets
Locomotive Jacket Sheets
Keystone Rust-resisting Copper Steel Sheets
Apollo Galvanized Sheets
Galvannealed Sheets
Formed Roofing Products
Tin and Terne Plates, Etc.

Our experienced engineers are ready to assist you in the selection of the proper products for your particular requirements. When maximum resistance to corrosion is important, specify for KEYSTONE quality—the original rust-resisting Copper Steel. Send for "Anti-Corrosive Metal" booklet.

US STEEL

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:

AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
CARNEGIE STEEL COMPANY
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPB'LDG. & DRY DOCK CO.
ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY
OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & RAILROAD CO.
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif.
Export Distributors—United States Steel Products Company, 30 Church Street, New York, N. Y.

of radio sets and tubes, as well as the decrease in general business. As of December 31, 1930, unfilled orders amounted to $40,208,181, which compares with $62,025,399 for the preceding year.

Net earnings per share were $4.45. During the year, four quarterly dividends were declared on the common and participating preferred stocks, each at the rate of 2½ per cent, a total for the year of 10 per cent ($5 per share), thus maintaining the increased dividend established in 1929.

In a statement to stockholders included in the report, Chairman A. W. Robertson and President F. A. Merrick speak as follows:

The year 1930 opened with a reduced business activity as compared with 1929, but with no great indication of a further drop before an upturn should become apparent. However, in midsummer a further sharp reaction came and buying suddenly ceased for everything the purchase of which could be postponed. The electrical manufacturing industry suffered with others in this series of changes.

Your company's performance for the year reflects these general conditions. The sales and profit figures were further reduced by the removal of the manufacture of radio sets and tubes which, effective as of January 1, 1930, by certain reorganizations, was vested in the Radio Corporation of America.

The financial condition continues to be sound and liquid. The resources of the company are such that it is well prepared to meet a possible extended continuation of unsatisfactory business conditions. On the other hand, it is in a favorable position to take advantage of any increase in business activity such as is inevitable sooner or later following a business depression.

While it has become increasingly apparent that industry is in the throes of a major economic depression which is not only nation-wide but world-wide, and while the first six months of 1931 undoubtedly will compare unfavorably with similar periods of recent years, nevertheless the picture is not without its brighter side. Corporations are subject to the same economic law as individuals. Those succeed who perform or serve acceptably and those grow more rapidly and become the greatest who serve best. The management is devoting itself to improving the organization. We realize that the better we function as an organization the better we can meet the present emergency and at the same time equip ourselves for the efficient handling of a normal volume of business in due time.

Fairbanks, Morse & Co.

The annual report of Fairbanks, Morse & Co. for 1930 shows a consolidated net profit for the year, after provision for depreciation, debenture interest, pension fund contributions, and federal income tax, of $641,728, as compared with $2,240,615 in 1929. Preferred and common stock dividends absorbed $1,455,536 while the total surplus and undivided profits of the company and its subsidiaries at the close of the year amounted to $12,812,472, giving a book value of $56.98 per share to the 368,871 shares of common stock outstanding. After deducting the preferred stock dividends from the net profit for the year, the balance remaining for the common stock was equal to $0.93 per share on the 368,871 shares outstanding, compared with $5.05 per share for 1929.

R. H. Morse, vice-chairman, in his statement to stockholders, said in part:

The net billings to customers for the 12 months amounted to $24,126,048, compared with $31,504,908 for 1929, a decrease for the year of $7,378,859. The total orders received during the same period aggregated $25,709,652, compared with $33,022,543 in 1929.

The efficiency of the plants has been greatly improved during the year. Special attention was given to the foundry at the Beloit plant, which has been modernized by the installation of new equipment and other changes that will bring about a substantial reduction in costs. The distributing divisions have also been improved and made more effective.

The work on the improvement of and additions to the product has been carried on as originally planned. The effect of this development on the future business of your company is of great value in the opening of new markets and in meeting the changing needs of our customers.

Attention is drawn to the Fairbanks-Morse Pension Fund, the accumulated funds of which, on December 31, 1930, amounted to $2,285,26[illegible]. These funds are under the control of eight trustees, and are invested in high grade securities entirely apart from the business of the company.

The consolidated income and surplus account as of December 31, 1930, was:

	1930	1929
Net sales	$24,126,048	$31,504,908
Gross Income	2,004,908	3,991,685
Deduct:		
Depreciation of buildings and equipment	826,348	867,916
Interest on debentures	361,333	377,333
Contributions to the pension fund	132,978	168,205
Federal income tax	42,521	337,616
	641,728	2,240,615
Add: Other income	.....	400,470
	641,728	2,641,085
Net profit of Municipal Acceptance Corporation	179,884	107,586
	821,612	2,748,671
Less: Amount appropriated for development	.....	400,000
	821,612	2,348,671
Surplus and undivided profits at December 31, 1929, per last report:		
Fairbanks, Morse & Co.	10,114,089	10,421,652
Subsidiary companies	3,908,874	2,972,283
Add: Adjustments pertaining to prior years	2,475	[illegible]
	14,847,050	15,742,606
Deduct:		
Premium paid on preferred stock retired	7,142	6,365
Adjustments pertaining to prior years	.....	121,261
	14,839,908	15,614,980
Dividends for the year:		
On 7 per cent preferred stock	478,028	485,404
On common stock	977,508	1,106,613
	$13,384,372	14,022,963
Less: Surplus appropriated for redemption of preferred stock	571,900	486,500
Unappropriated surplus and undivided profits, December 31, 1930	$12,812,472	$13,536,463

OBITUARY

John R. Mulcare, district manager of the American Car & Foundry Company, in charge of the Buffalo, N. Y., and Depew districts, died at his home in Buffalo on March 13. Mr. Mulcare was born 58 years ago at Deposit, N. Y. He served as an estimator for the Pressed Steel Car Company, Pittsburgh, Pa., and about 25 years ago entered the employ of the American Car & Foundry Company in its St. Louis, Mo. office. During the war he was located at the Detroit (Mich.) plant of the American Car & Foundry Company, and in 1919 joined the staff of the vice-president of operations at New York. Since February, 1922, he had served as district manager in charge of the Buffalo and Depew districts.

TRADE PUBLICATION

COPPER WELDING.—The welding of copper by the "Premag Process" is described in a pamphlet designated as Booklet No. M-1, published by the Murex Welding Processes, Ltd., Forest Road, London, E. 17, England. The process depends for its success upon a newly developed alloy filler rod.

Construction

CANADIAN NATIONAL.—This company has recently awarded contracts as follows: To R. H. Mason Construction Company, Toronto, Ont., for the construction of a subway to carry St. Clair avenue, Toronto, under a single track on the Newmarket subdivision; to A. Cope & Sons, Ltd., Hamilton, Ont., for the reconstruction of the subway carrying Park street, Kitchener, Ont., under the Waterloo subdivision; and to the Ontario Construction Company, St. Catharines, Ont., for the construction of a highway subway for King's highway No. 7, half a mile west of Breslau, Ont., on the Brampton subdivision.

CANADIAN PACIFIC.—Application has been made by this company to the Dominion Parliament for authorization of a new line to start between Breslay and Place Viger, just east of Outremont yards, Montreal, Que., and run northeast across Montreal Island and the Riviere des Prairies to L'Epiphanie on the mainland, 34.8 miles. The projected line will save about 10 miles on the present C.P.R. route between Montreal and L'Epiphanie, and will also provide additional service for the northeastern part of Montreal Island and the adjacent mainland. The present application is merely a preliminary step in order to obtain the necessary corporate power to construct the line, the final location of which has yet to be decided and approved by the Railway Commission. In connection with the construction of this company's new passenger station at Park avenue, Montreal, described in the *Railway Age* of January 10, page 173, the general contractors for which are Anglin-Norcross, Ltd., subcontracts for excavation have been awarded to Kendall Bros., and for structural steel to the Dominion Bridge Company.

CHICAGO BELT—CHICAGO & WESTERN INDIANA—NEW YORK, CHICAGO & ST. LOUIS.—The Illinois Commerce Commission has ordered the construction of a viaduct over the tracks of these railroads at 103rd street, Chicago. Of the total cost of $932,000, the city of Chicago will bear $409,000, the Nickel Plate $394,000, and the Western Indiana and the Chicago Belt $64,500 each. This project involves the removal of the Stony Island avenue yards of the Nickel Plate to a point east of Lake Calumet.

CHICAGO, BURLINGTON & QUINCY-WABASH.—The Missouri Public Service Commission has authorized the Missouri State Highway Commission to separate a grade crossing of these railroads and State Highway No. 61 near Hannibal, Mo., by the construction of a reinforced concrete viaduct over the tracks at a total cost of about $55,000.

CINCINNATI UNION TERMINAL.—Application for a permit to construct a new passenger station in the Mill Creek district of Cincinnati, Ohio, near Lincoln park, was filed with the building commis-

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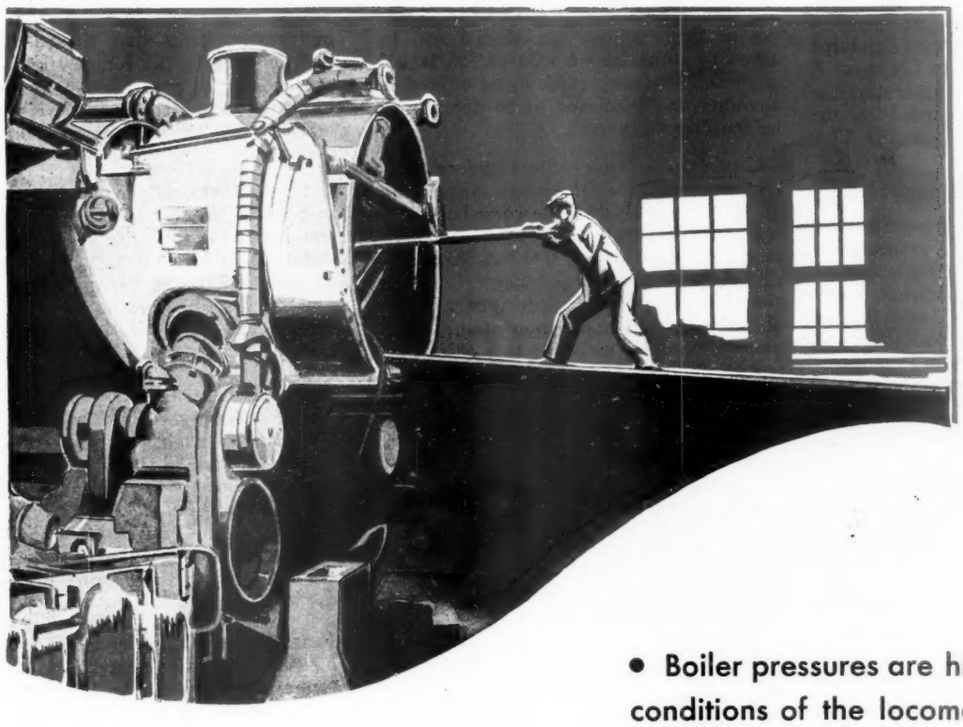
Fewer Tube Troubles with TONCAN



- Boiler pressures are higher. Working conditions of the locomotive are more severe.
- The boiler tube of the old day is unsuited for modern railroad operation.
- So Republic developed the boiler tube of Toncan Iron.
- A seamless boiler tube, easily worked and welded. A boiler tube with protection against the attacks of bad water.
- Toncan Iron boiler tubes are a contribution of modern metallurgy to the reduction of locomotive maintenance.

REG. U. S. PAT. OFF.
TONCAN
COPPER
Mo-lyb-den-um
IRON

Central Alloy Division
REPUBLIC STEEL
CORPORATION
Massillon, Ohio

sioner of that city on March 3. Bids for the structure, which is estimated to involve an expenditure of about $5,000,000, will be closed on March 25.

GREAT NORTHERN.—Contracts have been let to the Railway Engineering Equipment Company, Chicago, for direct steaming systems in the enginehouses at Great Falls, Mont., and Whitefish and Williston, N. D., and for all pipe work in the power house and water treating plant at Great Falls.

ILLINOIS CENTRAL.—A contract has been let to the American Bridge Company, Chicago, for the fabrication of the steel for a viaduct over the new Randolph Street suburban station site at Chicago. A contract for the erection of the steel for this viaduct has been awarded to the Strobel Steel Construction Company, Chicago.

LEHIGH VALLEY.—The Board of Public Utility Commissioners of New Jersey has ordered the elimination of a grade crossing on this company's line at Park avenue, 2,000 ft. west of Oak Tree station, South Plainfield, N. J. The work, involving the construction of an overhead highway bridge, is to be begun by June 1 and completed within six months, while the cost, estimated at $138,250, will be divided equally between the railroad and the state.

TENNESSEE, ALABAMA & GEORGIA.—A contract has been awarded to the Virginia Bridge & Iron Company, Roanoke, Va., for the construction of a 120-ft. steel span designed for Cooper's E-50 loading over Little river, near Little River, Ala. The total cost of the bridge, including creosoted pile approaches, will be about $54,000.

WABASH.—This company has applied to the Missouri Public Service Commission for authority to construct a new double-track line from a point in St. Louis county, several miles east of the Missouri river, to a point west of the passenger station at St. Charles, Mo. The new line is to be built in conjunction with the bridge now under construction over the Missouri river one half-mile downstream from the existing structure at St. Charles. In St. Louis county Fee road will be carried over the new line on a viaduct, while underpasses are to be constructed at Gist road, Taussig avenue and Missouri Bottoms road. In St. Charles the tracks of the Wabash will be carried over those of the Missouri-Kansas-Texas and over Main street and Maris Croche and Lower Bottom roads.

WESTERN PACIFIC CALIFORNIA.—This company has asked the Interstate Commerce Commission for an extension of time to April 1 and July 1, 1933, for the beginning and completion of construction work on the line from Redwood City to Niles, Cal., which was conditionally authorized by the commission. It is stated that negotiations are to be had with the Southern Pacific in an attempt to obtain trackage rights over the Dumbarton bridge and adjacent trackage.

Financial

BOSTON & MAINE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $13,943,000 of 4¾ per cent bonds to provide funds for purchasing 6 per cent bonds from the Treasury Department, held in connection with federal control financing. The bonds are to be sold at 97 and interest to Kidder, Peabody & Co., Lee, Higginson & Co., and Harris, Forbes & Co.

CANADIAN PACIFIC.—*Stock.*—Stockholders of this company on May 6 will be asked to authorize the sale of $50,000,000 additional ordinary stock to be offered in amounts and on terms to be determined by the directors.

CHICAGO & ALTON.—*Stockholders' Protective Committee Objects to Acquisition by B. & O.*—A protective committee representing the holders of 75,000 shares of stock of the Chicago & Alton has petitioned the Interstate Commerce Commission for permission to intervene and file objections to the application of the Baltimore & Ohio for authority to acquire control of the property of the Alton, which was purchased by its agents at foreclosure sale. For the commission to grant the application, the petition says, would constitute an approval of terms and conditions which are unfair to the stockholders.

GULF, MOBILE & NORTHERN.—*New Director.*—E. N. Brown, chairman of the board of the St. Louis-San Francisco, has been elected a member of the board of directors of this railroad.

LEHIGH VALLEY.—*Authority of Director to Serve on Pennsylvania Board Revoked.*—In authorizing Arthur C. Dorrance to serve as director of the Lehigh Valley, in addition to other positions, the Interstate Commerce Commission has revoked the authority previously granted to Mr. Dorrance to serve as director of the Pennsylvania and carriers subsidiary to or affiliated therewith.

MISSOURI - KANSAS - TEXAS. — *Omits Dividend.*—This company which initiated a $1 quarterly dividend on June 30 last and continued it for the two final quarters of 1930 has omitted the payment for the quarter ending this month.

NEW YORK CENTRAL.—*Michigan Central Stock.*—Arbitrators selected by this company and the minority stockholders of the Michigan Central have fixed a price of $1550 a share plus interest at the rate of 6 per cent since February, 1930, less dividends, as a fair price for the stock of the Michigan Central in outside hands, which is less than one per cent of the total. The Interstate Commerce Commission, in approving the lease of the Michigan Central to the New York Central on an annual rental basis of $50 a share, stipulated that the New York Central must purchase at a fair price all minority stock offered within 90 days. This arbitration proceeding determines the requisite fair price.

NORFOLK & WESTERN.—*Protest Against Recapture Report.*—This company has filed with the Interstate Commerce Commission a protest against the tentative recapture report recently made public by the commission which was accompanied by an order directing the company to pay over $15,000 as representing its excess income, unless a protest was filed. Whereas the tentative report stated the value as ranging from $349,000,000 in 1924 to $379,500,000 in 1926, the company states that if determined upon a proper consideration of the relevant facts and in accordance with law the value would be not less than $718,000,000 in 1924 and $737,700,000 in 1926. The protest states that the method of valuation used by the commission is arbitrary and not in accordance with the law and a conference is asked between representatives of the road and of the commission.

PENNSYLVANIA.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell $50,000,000 of general mortgage 4¼ per cent gold bonds, at 94 and interest, to Kuhn, Loeb & Co., to refund a like amount of 6 per cent bonds held in the company's treasury.

PENNSYLVANIA. — *Operation of Ohio River & Western.*—The Interstate Commerce Commission has authorized the Ohio River & Western to abandon its line from Bellaire, Ohio, to Woodsfield, 42 miles, selling that portion from Bellaire to Key, 11.5 miles, to the Pittsburgh, Ohio Valley & Cincinnati to be operated by the Pennsylvania, which is the lessee of the latter company.

PERE MARQUETTE.—*Bonds.*—The Interstate Commerce Commission has authorized the issuance and sale of $8,000,000 of first mortgage 4½ per cent bonds, to be sold at not less than 97½, and the authentication and delivery of $6,386,000 of similar bonds upon the cancellation of $3,072,000 of first mortgage 5 per cent bonds.

PITTSBURGH & WEST VIRGINIA.—*Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue 4½ per cent notes for $4,700,000 for four months, to be secured by pledge of 4½ per cent bonds.

Average Prices of Stocks and of Bonds

	Mar. 17	Last week	Last year
Average price of 20 representative railway stocks.	85.26	89.68	135.50
Average price of 20 representative railway bonds..	93.48	94.04	94.43

Dividends Declared

Mahoning Coal R. R.—Common, $12.50, quarterly, payable May 1 to holders of record April 15.

New York Central.—1¼ per cent, quarterly, payable May 1 to holders of record March 27.

Pennsylvania Co.—$.75, quarterly, payable March 20 to holders of record March 11.

Pittsburgh, Bessemer & Lake Erie.—Common, $.75, payable April 1 to holders of record March 14.

Rutland.—Preferred, 2 per cent, payable April 15 to holders of record March 27.

Southern.—Preferred, 1¾ per cent, quarterly, payable April 15 to holders of record March 23.

Southern.—(M. & O. stk. tr. ctfs.) 2 per cent, payable April 1 to holders of record March 16.

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THIS is an item of greater expense, annoyance and detention than is generally considered.

These items, on FIREBAR equipped locomotives, have been reduced to a minimum. It is the distribution of air necessary for good combustion that produces

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. . . the kind which burn all the coal in the firebox where it was intended.

FIREBAR CORPORATION

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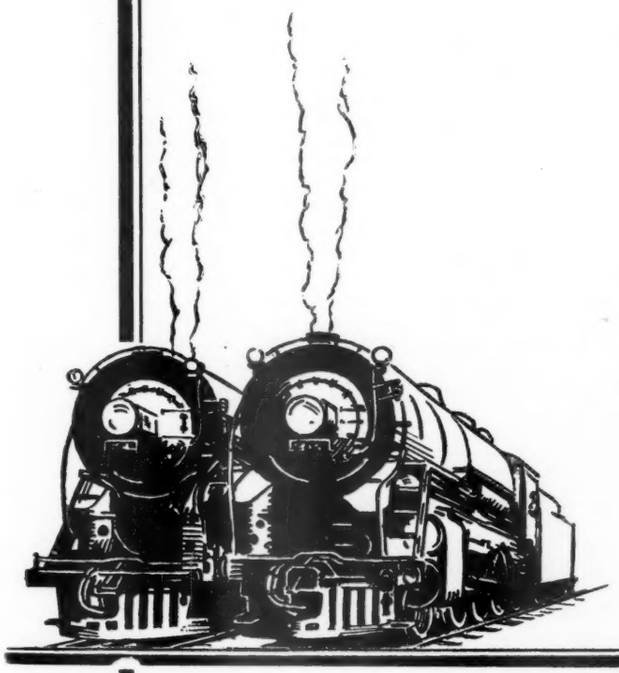

Railway Officers

EXECUTIVE

C. P. Couch, executive vice-president of the Louisiana & Arkansas and the Louisiana, Arkansas & Texas, with headquarters at Shreveport, La., has been elected president of the latter road, retaining his present position of executive vice-president of the Louisiana & Arkansas. Mr. Couch entered railway service in 1906 as a locomotive fireman on the Louisiana & North West. Later he engaged in the telephone and electric

C. P. Couch

power business in connection with the development of interconnected power systems of the present Arkansas, Louisiana and Mississippi Power & Light companies. In 1923 he became vice-president and general manager of the Mississippi Power & Light Co. and in 1927 he was elected vice-president and general manager of the Southern Ice & Utilities Co., with headquarters at Dallas, Tex. Mr. Couch was elected executive vice-president of the Louisiana & Arkansas and the Louisiana, Arkansas & Texas in April, 1930.

FINANCIAL, LEGAL AND ACCOUNTING

Willis Gale, treasurer of the Chicago & Illinois Valley, has been appointed assistant treasurer of the Illinois Terminal System, with headquarters at Chicago.

H. A. Thomson has been appointed tax commissioner of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., succeeding **C. G. Sturtevant,** who has retired from active service.

Fred D. Fauser, who has been appointed general claim agent of the Wabash, with headquarters at St. Louis, Mo., has been engaged in railroad work for about 33 years. He was born at Philadelphia, Pa., on September 14, 1882, and obtained his first railway experience in October, 1897, as a machinist apprentice on the Rock Island & Peoria (now part of the Chicago, Rock Island & Pacific) at Peoria, Ill. In 1911 he entered the service of the Illinois Traction System (now the Illinois Terminal System), at Peoria, serving as a claim adjuster until 1919 when he be-

Fred D. Fauser

came engaged in similar work for the Terminal Railroad Association at St. Louis. While with the T. R. R. A. Mr. Fauser attended the Benton College of Law at St. Louis and was admitted to the bar in 1924. He served as a claim adjuster on the Terminal Railroad Association until his appointment as general claims agent of the Wabash on March 1.

OPERATING

J. A. Cesnik has been appointed general manager of the Hillsboro & Northeastern, with headquarters at Hillsboro, Wis., succeeding **E. J. Hammer,** deceased.

A. Behner has been appointed joint superintendent telegraph of the New York Central and Western Union Telegraph Company, with headquarters at Cleveland, Ohio.

R. B. H. Hays, assistant road foreman of engines on the Renovo division of the Pennsylvania, has also been appointed assistant trainmaster of that division at Kane, Pa. **J. B. Hays,** trainmaster on the Logansport division has been transferred to the Renovo division at Erie, Pa.

R. E. Taylor, chief train dispatcher on the London division of the Canadian Pacific at London, Ont., has been promoted to assistant superintendent on that division at Windsor, Ont. Mr. Taylor replaces **G. M. Bailie,** who has been appointed agent of the operating department at Detroit, Mich., succeeding **F. A. Vandusen,** deceased.

Victor Parvin, general manager of the Ann Arbor, with headquarters at Toledo, Ohio, has been appointed general superintendent of that railroad and the Detroit, Buffalo, Peru and Chicago Terminal divisions of the Wabash, with headquarters at St. Louis, Mo. **Elmer A. Sollitt,** general superintendent of the Wabash, with headquarters at St. Louis, will retain jurisdiction over the western lines of the Wabash.

J. W. Devins, acting superintendent of the Central division of the Minneapolis & St. Louis, with headquarters at Fort Dodge, Iowa, has been appointed superintendent of that division, succeeding **C. A. Hodgman,** who resigned on March 15. **A. A. Fox,** acting superintendent of the Railway Transfer Company of the City of Minneapolis (Minn.), has been appointed superintendent of that company.

E. E. McDaniels, assistant trainmaster of the St. Louis division of the Pennsylvania, has been promoted to trainmaster of the Cumberland Valley division, succeeding **F. H. Wisegarver,** who has been transferred to the Grand Rapids division. Mr. Wisegarver replaces **E. C. Rohrbaugh,** who has been transferred to the Logansport division. **F. A. Kennedy,** assistant trainmaster on the Buffalo division, has been transferred to the Fort Wayne division, succeeding **F. B. Kraus,** who has been transferred to the St. Louis division to succeed Mr. McDaniels.

Rolla C. Parsons, who has been promoted to superintendent of transportation of the Louisville & Nashville, with headquarters as before at Louisville, Ky., to succeed **W. J. Haylow,** deceased, has been in the service of the transportation department of that railroad for nearly 26 years. He was born at Livingston, Ky., on July 15, 1890, and obtained his first railway experience as a telegraph operator on the Louisville & Nashville in October, 1905. From 1907 to 1911 Mr. Parsons served on a number of other railroads as a telegraph operator, then returning to the L. & N., where he was advanced successively through the positions of dispatcher, assistant and night chief dispatcher and assistant master of trains. On July 1, 1920, he was appointed system car distributor in the office of the superintendent of transportation and on March 1, 1923, he became chairman of the mine rating bureau. Mr. Parsons was advanced to assistant superintendent of transportation on May 6, 1929, his further promotion to superintendent of transportation becoming effective on March 10.

TRAFFIC

A. M. Rojas has been appointed assistant general freight agent of the Mexican, with headquarters at Mexico, D. F.

Albert B. Cooper, foreign freight representative of the Pennsylvania, has been appointed foreign freight agent, with headquarters at Philadelphia, Pa.

The headquarters of **J. B. Hardaway,** freight claim agent of the Illinois Ter-

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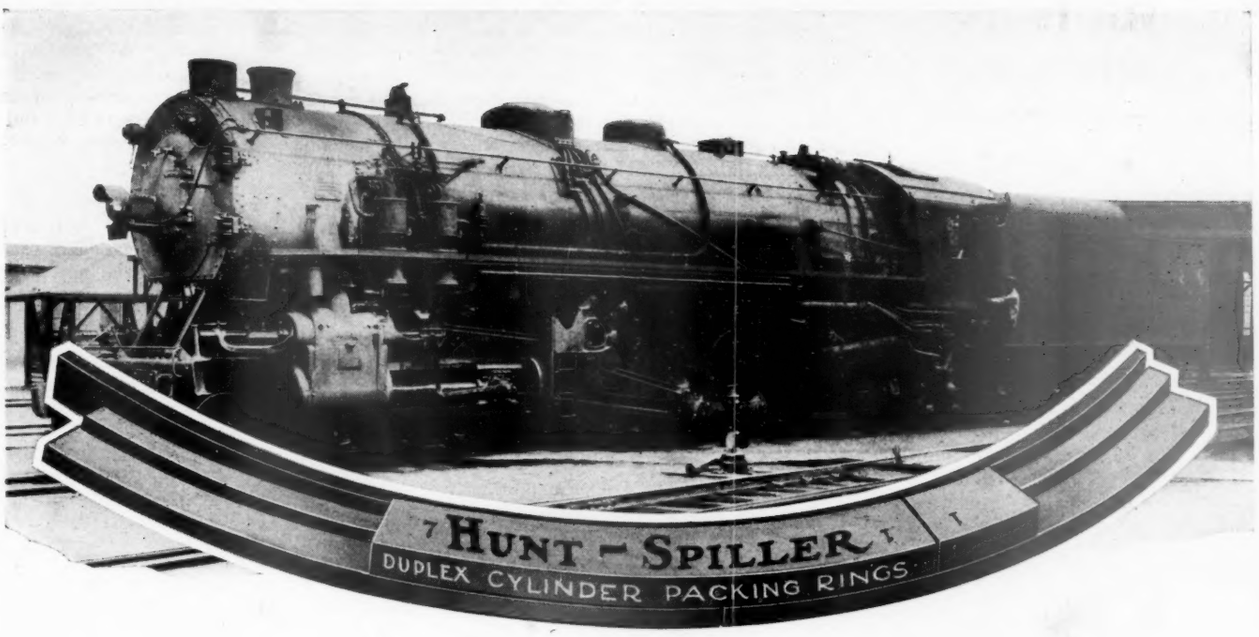

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Cylinder blows rarely develop because the design of *Duplex Packing* insures maximum wear without breakage and because the scientifically heat treated rings which support the sections are not affected by high superheat temperatures.

Maximum mileage between renewals is assured because of the wear-resisting properties of HUNT-SPILLER *Air Furnace* GUN IRON.

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Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER GUN IRON

Air Furnace

minal System, have been removed from Springfield, Ill., to St. Louis, Mo.

L. P. Smith, commercial agent for the St. Louis Southwestern at Atlanta, Ga., has been promoted to general agent at Chattanooga, Tenn., succeeding **T. G. King,** who has been transferred to Nashville, Tenn. Mr. King replaces **R. A. Pendergrass,** who has been transferred to Winston-Salem, N. C., to succeed **E. E. Perkins,** deceased.

The jurisdiction of **George L. Alley,** general baggage agent of the Union Pacific and the Oregon Short Line, with headquarters at Omaha, Neb., was extended to include the Oregon-Washington Railroad & Navigation Company and the Los Angeles & Salt Lake, on March 16. **Mark F. Johnston,** general baggage agent of the Los Angeles & Salt Lake, has been appointed assistant general baggage agent of the Union Pacific System, with headquarters as before at Los Angeles, Cal.

ENGINEERING AND SIGNALING

H. L. Benson, instrument man on the Canadian National at Allandale, Ont., has been promoted to division engineer of the Hornepayne division at Hornepayne, Ont., succeeding **H. J. Black,** who has been transferred to the Capreol division at Capreol, Ont.

PURCHASES AND STORES

Charles S. White, purchasing agent of the New York Central, has been promoted to general purchasing agent of the New York Central Lines, a newly-created position, and **Charles C. Warne,** first assistant purchasing agent, has been appointed to succeed Mr. White as

C. S. White

purchasing agent. **William J. Warnock,** assistant purchasing agent, has been advanced to the position vacated by Mr. Warne. All will have headquarters at New York.

Mr. White was born at Morgantown, W. Va., on April 12, 1888, and commenced his railroad career on July 18, 1910, with the New York Central, as a clerk at Pittsburgh, Pa. On August 21, 1910, he was assigned a similar position in the office of the passenger agent at Pittsburgh, and on June 1, 1915, he was promoted to chief clerk. Mr. White was appointed assistant purchasing agent on November 1, 1915, and on February 29, 1920, he was advanced to purchasing agent, the position he held at the time of his recent appointment.

Mr. Warne was born in England, on July 15, 1881, and received his education at the University of Pittsburgh, from which he was graduated in 1903. He obtained his first railroad experience in 1903, as a rodman in the maintenance of way department, western division of

C. C. Warne

the New York Central & Hudson River (now the New York Central). From January, 1904, to March, 1905, he served as assistant supervisor of track and on the latter date he was appointed transitman and draftsman. In April, 1906, Mr. Warne was appointed assistant division engineer, and from September, 1912, to January 1, 1914, he served as lumber agent. In January, 1914, he was promoted to assistant to purchasing agent and from April, 1919 until his recent appointment, he has served as first assistant purchasing agent.

OBITUARY

T. M. Dozier, general southern agent of the Norfolk Southern at Atlanta, Ga., died on March 16, at the age of 54.

John J. Loftus, superintendent of the West Side freight terminal of the New York Central, died on March 16, at the age of 79.

Robert Brownlee, who retired as assistant auditor of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., in 1926, died on March 10 at Hollywood, Cal.

Thomas C. Loftus, trainmaster of the Minnesota division of the Minneapolis, St. Paul & Saulte Ste. Marie, with headquarters at Glenwood, Minn., died on January 30 after more than 35 years of service in the operating department of the Soo line.

William R. Frederick, for the past 20 years an examiner for the Interstate Commerce Commission, died on March 8 at St. Luke's hospital, St. Louis, Mo. Mr. Frederick had been in charge of the St. Louis office of the commission since 1924.

J. H. Bannerman, former mechanical superintendent of the Tennessee Central, died at a hospital at Freeport, Ill., on March 10. Mr. Bannerman was master mechanic of the Illinois Central at Clinton, Ill., from 1897 to 1902 and during the following two years he served as mechanical superintendent of the Tennessee Central at Nashville, Tenn.

Robert L. May, superintendent of transportation of the Fort Worth & Denver City and the Wichita Valley Railway Companies, died at his home in Fort Worth, Tex., on March 11. Mr. May was born at Longview, Tex., on November 6, 1883, and entered railway service on February 22, 1902, with the roads with which he was associated until his death, serving first as ticket clerk in the city ticket office at Fort Worth. He remained in that position until December 1, 1902, when he accepted a clerkship in the traffic department, being transferred to a similar position in the office of the car accountant on July 1, 1903. On November 1, 1905, he was appointed chief clerk to the car accountant, and on July 1, 1909, he was appointed car accountant. He continued in that position until November 15, 1917, when he was appointed chief clerk to the general superintendent, where he served until August 1, 1919, when he was appointed superintendent of transportation, which position he continued to hold until the time of his death.

Matthew McKernan, retired assistant to the general manager and superintendent of safety of the Missouri Pacific, died at Kansas City, Mo., on February 13, after a short illness, at the age of 73 years. Mr. McKernan was a native of Susquehanna, Pa., and obtained his first railroad experience in 1886 as a fireman and brakeman on the Erie at that point. From 1889 to 1892 he was employed as a conductor and a yardmaster on the Chicago, St. Paul, Minneapolis & Omaha and during the following two years he served as a conductor on the Wisconsin Central (now the Minneapolis, St. Paul & Sault Ste. Marie). Mr. McKernan became a trainmaster on the Chicago, Rock Island & Pacific in 1895, and for the following 16 years he served in that capacity and as a division superintendent on the Rock Island and as a trainmaster on the Northern Pacific. He entered the service of the Missouri Pacific in 1911 and served successively as assistant to the general manager, division superintendent, superintendent of safety, special assistant to the general manager and transportation inspector and operating rules instructor. He retired from active duty in 1928. Mr. McKernan was known as one of the foremost authorities in this country on operating rules.